REPORT RESUMES

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THE ROLE OF AGRICULTURAL EDUCATION IN THE ECONOMIC DEVELOPMENT OF THAILAND, PHASE 5--EDUCATION AS AN INSTRUMENT OF NATIONAL POLICY IN SELECTED DEVELOPING NATIONS.
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THE CONTRIBUTION OF EDUCATION TO THE AGRICULTURAL SECTOR OF THE ECONOMY OF THAILAND WAS INVESTIGATED. SPECIAL ATTENTION WAS GIVEN TO THE STUDENTS AND TEACHERS ABOVE THE ELEMENTARY LEVEL, GRADES 8-10, INVOLVED IN THE AGRICULTURAL EDUCATIONAL PROCESS (BOTH ACADEMIC AND VOCATIONAL). THE STUDY CENTERED ON THREE QUESTIONS--(1) DOES THE THAI GOVERNMENT INDICATE A RECOGNITION OF THE IMPORTANCE OF AGRICULTURAL EDUCATION IN ITS ECONOMIC AND EDUCATIONAL PLANNING AND IN ITS FISCAL POLICIES, (2) TO WHAT EXTENT IS THE PRESENT ORGANIZATIONAL STRUCTURE OF AGRICULTURAL EDUCATION DESIGNED TO FACILITATE AGRICULTURAL DEVELOPMENT, AND (3) TO WHAT EXTENT IS AGRICULTURAL EDUCATION CONTRIBUTING TO THE DEVELOPMENT OF FARM-SERVICE GROUPS. SURVEYS WERE CONDUCTED WITH GOVERNMENTAL AND EDUCATIONAL OFFICIALS, TEACHERS AND STUDENTS, AND FIRMS SELLING AGRICULTURAL PRODUCTS, USING INTERVIEWS AND QUESTIONNAIRES. RESULTS OF THE STUDY REVEALED THAT THE MAJORITY OF STUDENTS, ENTERING SENIOR AGRICULTURAL SCHOOLS, DO NOT COME FROM FARM BACKGROUNDS AND HAVE NO PREVIOUS AGRICULTURAL TRAINING. IN ADDITION, THESE STUDENTS ARE (1) PRESENTED WITH EDUCATIONAL PROGRAMS, HEAVILY ORIENTED TOWARD NONAGRICULTURAL SUBJECTS, (2) PROVIDED WITH LITTLE PRACTICAL EXPERIENCE ON SCHOOL FARMS OR IN FARM SHOPS, (3) GIVEN FEW OPPORTUNITIES FOR EXPERIENCE OUTSIDE SCHOOL WITH LOCAL EXTENSION SERVICES OR EXPERIMENTAL STATIONS, AND (4) ENCOURAGED TO PREPARE FOR UNIVERSITY ENTRANCE EXAMINATIONS. THE STUDY DELINEATES THE FACTORS PREVENTING THE DEVELOPMENT OF PERSONS WHO UNDERSTAND AND CAN WORK AS FARM SERVICE WORKERS. (HB)

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EDUCATION AS AN INSTRUMENT OF NATIONAL POLICY IN SELECTED NEWLY DEVELOPING NATIONS, Phase 5.

~~Phase 5:~~ The Role of Agricultural Education in the Economic Development of Thailand

Cooperative Research Project No. 1032

Harold Freeman
Paul R. Hanna

COMPARATIVE EDUCATION CENTER
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1964

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FOREWORD

We live in a period of great expectations. The peoples of the newly developing nations have visions of a life potentially free from hunger, disease, ignorance, and serfdom. These awakened peoples, constituting a formerly depressed two-thirds of the human family, are on the march in Asia, in Africa, and in the Americas. They are determined to create viable economic institutions, laws, and mechanisms through which they can assure themselves and their posterity of health, longevity, the material necessities, and even some luxuries. They seek dynamic but dependable political institutions and customs through which justice and freedom may be maintained. They desire social conditions which generate equality of opportunity and create respect for human dignity.

In these heroic efforts to create a better life, the leaders of the nations conceive of education as the tool to shape the new life for their people. To produce more food and fiber, farmers and fishermen must be taught modern practices. To process producer and consumer goods efficiently from the raw resources of field, forest, mine, and sea, labor and management must know modern industrial techniques. To distribute the goods and services, men must learn the economics of marketing and of consuming. Education--both general and technical--has become a major weapon in the struggle of economic growth. Similarly in changing old customs and in developing new political and social institutions and mores, the school plays an increasingly crucial role.

During the past 15 years the newly developing nations have requested assistance in education planning from the UN agencies FAO, ILO, WHO, UNESCO, and the Technical Assistance Board. On a bilateral nation-to-nation basis, the United States, the USSR, France, Germany, Japan, the Commonwealth Nations, and other technologically developed peoples have been loaning their educational technicians to those nations requesting aid. The largest of such aid programs has been that provided by the United States Agency for International Development. Private corporations, foundations, and other segments of the United States community have made an additional contribution through their non-governmental channels to the gigantic task of creating the educational establishments overseas within which human resources could be developed.

While there is general agreement on the crucial role of education in the developmental processes, there is a critical scarcity of research to discover what educational approaches and strategies may be most effective under differing national and cultural conditions. With assistance from the United States Government, private foundations and corporations, and other sources, the Stanford University School of Education and the Stanford Research Institute have been engaged since 1955 in a variety of research activities to help fill the gap in research-based literature on the subject of educational investment in nation building. Planned, underway, or completed is a series of research projects investigating education as an instrument of national policy in (1) several technologically newly developing nations that have always been politically independent, (2) nations emerging from several differing colonial systems, and (3) several advanced nations that have a long history of independence. From the series of comparative studies an attempt ultimately will be made to extract any generalizations and principles that may lie unobserved or untested at present. From these generalizations and principles there might be constructed strategies that would help both donor and recipient as educational technical assistance is brought to bear on nation building.

The study herein reported is the fifth of this series to be completed under contract with the Cooperative Research Bureau of the United States Office of Education. I was in Thailand in December 1963 and discussed this particular research with officials of the Thai Government and with officials of the United States agencies and foundations working with the people of Thailand. I found an eagerness to have the study undertaken. Further, I found that Mr. Harold Freeman, then a Research Assistant in Stanford's Comparative Education Center, and who had previously lived and worked in Thailand for two years as an AID educational officer, would be welcomed back as the person to do the research. Thus arrangements were made for the Freeman family to return to Thailand for the calendar year 1964.

In addition to financial assistance from the USOE research contract, a grant was made for this particular study by the Agricultural Development Council of New York City. Appreciation to the Council is hereby gratefully acknowledged.

In Thailand Mr. Freeman had the fullest cooperation from the Thai people and the officials of their government. Many of those who gave generously of their wisdom and time are acknowledged in the Preface by Mr. Freeman. The Comparative Education Center of Stanford University is grateful for the research opportunities the Thai government provided Mr. Freeman and hopes that the findings may be of use in improving what is already a sound educational system of this ancient nation.

Mr. Freeman also had significant help from personnel of the United States Agency for International Aid and from personnel of other external aid groups working in Thailand. Mr. Freeman records his and our thanks to these colleagues for their encouragement and assistance.

Mr. Freeman subsequently was awarded the Stanford University doctorate for his research.

Completed, in the planning stages, or currently under way in universities and research institutes throughout the world are similar studies of the educational efforts of other nations to improve their agricultural, industrial, social, or political practices and institutions. As we have stated earlier, it is our hope that from a comparative analysis of many such depth studies may emerge strategies for a more effective contribution of the educational industry to the achievement of a nation's development goals.

Paul R. Hanna, Director
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Stanford University

December 1964

PREFACE

The trend towards urbanization and industrialization seems to be world wide; yet the majority of the peoples of the world will remain rural and agricultural for some time to come. The dissemination of agricultural knowledge and skills to this rural farm population is generally considered to be one pre-requisite for agricultural development and, ultimately, for the raising of levels of living in rural areas. In order for this dissemination to take place, a nation must develop a corps of farm service workers--agricultural extension officers, community development workers, and so on. This leads one to wonder what kinds of training will be needed for such persons to function effectively. It was with this consideration in mind that this thesis on The Role of Agricultural Education in the Economic Development of Thailand was undertaken.

Under the direction of Professor Paul R. Hanna, graduate students in the doctoral concentration in Comparative/Overseas Education at Stanford University have conducted a number of studies concerned with the role of education in the development of the emerging nations. This study is one of that series. It is hoped that the approach used in conducting this research will prove of value for similar research in other nations and that the findings derived from this study will be of some assistance to the Thai Government in their educational planning for agricultural development.

From the initial development of the research proposal, through the months of data gathering and analyzing, and finally to the period of writing the drafts of the findings and conclusions, I have been supported and encouraged by so many persons that it is difficult to know just where to begin in acknowledging this assistance and moral support.

Throughout the study Dr. Kaw Sawasdi Panish, the Head of the Educational Planning Office in the Thai Ministry of Education, and Dr. Prom Panichpakdi, the Head of the Manpower Planning Office in the National Economic Development Board, both provided professional suggestions and guidance. They also helped with many administrative problems, such as translating of questionnaires, obtaining of Thai Government documents, and arranging for interviews with high ranking officials.

Nai BhongSakdi Varasundharasoth, the Director-General of the Thai Department of Vocational Education, granted permission for this research which directly involved schools under his jurisdiction and placed his staff and facilities in the Agricultural Schools Division of his Department at my disposal. Here, too, considerable administrative and clerical assistance was made available.

I am especially grateful to Nai Niyom Srinoparut, a supervisor, and Nai Prayonk Kalantin, a headmaster, under the Agricultural Schools

Division. These two men, more than all others, devoted much of their time to providing me with insights into the problems facing the agricultural schools. They also accompanied me on many field trips to the agricultural schools, handled the arrangements for these visits, and helped me evaluate my findings and impressions resulting from these trips.

I would like to express my deep appreciation to persons in other departments both within the Thai Ministry of Education and in other ministries for their cooperation given to me in carrying out this research. I would like to single out Nai Thumnong Singkalavanij, the Director of Agricultural Promotion and Extension in the Ministry of Agriculture, for his interest and encouragement.

Mention should be made here of the warm reception I received at all schools visited. The headmasters and their staffs went out of their way to make my visits pleasant and rewarding. Nai Suwachara Saengprasert, Headmaster of the Ayuthya Agricultural School, and his staff were particularly gracious hosts to me and my family during our stay at his school.

I could not end my acknowledgments in Thailand without calling attention to the valuable and substantial support and guidance I received from the United States Aid Mission (USOM/Thailand). The home base for all my research activities was the USOM Education Division, headed by Dr. Frederic T. Shipp. I am greatly indebted to Dr. Harry Kitts and Dr. James Woodhull, the USOM Agricultural Education Advisors. They both helped me with many administrative arrangements and spent many hours with me discussing the past and present status of agricultural education in Thailand, as well as prospects for the future. Dr. Woodhull also read the first draft of my thesis and provided me with many important suggestions of ways to bring my findings into sharper focus.

Other operating divisions within USOM were of great service to me in a myriad of ways. Mr. Walter Scott and Mr. Donald Mitchell were two advisors in the USOM Agricultural Division who demonstrated constant interest in my research and helped me gain access to both personnel and data from the Ministry of Agriculture. Mr. Frank Sheppard of the Social Development Division and Mr. Harry Tolman of the Public Administration Services Contract were also very helpful.

Before leaving the Thailand scene, I would particularly like to thank Dr. Milton Snodgrass, Visiting Professor of Agricultural Economics at Kasetsart University, for his thorough and painstaking critique of the first draft of my thesis. As a result of his comments and suggestions, the time required to complete the final report of the research upon my return home to Stanford was considerably reduced.

December 1964 Harold Freeman

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AGRICULTURE AND THE FARMER IN THAILAND'S ECONOMIC DEVELOPMENT

Economic development has been accepted as a central aim of national policy in most Asian countries. Thailand is no exception. In his introductory remarks in the recently published second phase of the country's six-year plan, the Prime Minister had this to say: "Since the coming to power of the Revolutionary Government, the promotion of the economic and social welfare of the people of Thailand through more rapid economic development has been a keystone policy."[1]

There is currently considerable difference of opinion among economists regarding the virtues of balanced versus unbalanced growth and upon the emphasis of agricultural development versus the emphasis of industrial development. It would seem, however, that presenting a discussion of economic development in terms of opposing claims of agriculture and industry inevitably leads to false dilemmas. It would be impossible in underdeveloped countries to provide sufficient jobs without industrialization, or adequately feed and clothe all the population without an increase in agricultural productivity.[2]

The Deputy Minister of National Development has said: "It is true that in the long run the importance of agriculture will be overshadowed by industrial progress, but it will take a long time for Thailand's industry to develop to such an extent that it can generate its own surplus for further investment. Thailand is not yet on the threshold of an accelerated period. In my opinion, it has just arrived at the point of 'take-off'. Thailand, therefore, will have to depend for decades to come on the income from agriculture to finance her economic development."[3]

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[1] Government of Thailand, National Economic Development Board, National Economic Development Plan, 1961-1966, Second Phase: 1964-1966 (Bangkok, 1962), p. a. (Hereafter called Thai Dev. Plan.)

[2] For further elaboration of the role of agriculture in economic development, see Arthur Lewis, The Theory of Economic Growth (Homewood, Illinois: Richard D. Irwin, Inc., 1955); Bruce F. Johnston and J. W. Mellor, "The Role of Agriculture in Economic Development," American Economic Review, LI (September, 1961); Earl O. Heady, Agricultural Policy under Economic Development (Iowa City, Iowa: State University Press, 1962); and UNESCO, Education and Agricultural Development, Freedom from Hunger Campaign Basic Study No. 15 (Paris: UNESCO, 1963).

The Development of Agriculture

Thailand is essentially an agricultural country and one based on the cultivation of rice. Agriculture contributes over one-third of the national income, and most of the exports (85-90%) are agricultural products. Of the 26,300,000 people in 1960, approximately 82% were farmers. The typical Thai farmer owns and operates an average of 10.28 acres of land. Farmers live together in villages near a source of domestic water. Their homes are small wooden or thatched buildings and they generally have only a few clothes, utensils, and equipment (sometimes including water buffaloes or oxen, a plow, a cart and small boat, and a few hand tools such as hoes). The major food is rice. In so far as possible they catch or buy fish to supplement the rice and raise a few chickens or ducks for eggs and meat. Some farmers raise hogs or cattle which are often sold for cash rather than eaten as a vitally needed protein. About 86% of all farmers raise rice as their main or only crop. In fact, rice is always planted, if at all possible, as the main source of the family food and for security from starvation.

The importance of agriculture in the Thai economy cannot be overstated. To plan for the development of agriculture is of crucial significance since it implies planning for the advancement of a greater part of the country and the population.

Policy Objectives and Implementation

The policy objectives for agricultural development for 1964-1966, as set forth in the National Economic Development Plan, are as follows:

1. To expand agricultural production and exports, to improve the quality of important farm products, and to diversify output in order to achieve increasing national income and a higher per capita income for the country's agricultural population.

2. To improve production techniques so that output per rai and income from production will be increased.

3. To manage and develop natural resources valuable to agriculture, such as soil, forest, water, etc.

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[3] Bunchana Atthakor, "The Role of Agriculture in Thailand's Economic Development," The Role of Agricultural Economics in Economic Development, Proceedings of First Conference on Agricultural Economics, Agricultural Economics Society of Thailand, ed. Pramoon Vidhyananda (Bangkok: Mongol Karpin Press, 1962), p. 11.

4. To bring improvements in social conditions in rural areas.

5. To promote farm institution such as cooperatives, young farmer's associations, agricultural credit, etc., and to promote a sound system of land tenure.

6. To promote the status of agricultural employment and to ensure that the farmer receives equitable remuneration for his labor.

7. To expand and to improve the efficiency of Government agencies and public enterprises which serve the agricultural population.

In order to implement these principal policy objectives, the Plan calls for the following measures:

1. The building of the agricultural infrastructure, such as irrigation, power, and communications, will be accelerated.

2. Agricultural research will be improved and expanded so as to modernize farm techniques and to increase farm efficiency.

3. In animal husbandry, steps will be taken to improve breeds, to increase production and reduce production costs; to control and eradicate animal diseases; to promote better feeding of animals; and to provide public grazing fields under effective Government supervision.

4. In the development of fisheries, steps will be taken to promote fresh-water and marine fishing.

5. In the field of forestry, steps will be taken to conserve forest watershed areas as well as designated preserved forests.

6. Priority is given to promoting crops already in good demand, such as maize, oil-seeds, coconuts and cotton. The replanting of rubber trees will be accelerated.

7. Improvements in the land-tenure system are designed to assure average holdings and ownership per farm family of not less than the present size of about 25 rai. Shifting cultivation will be prohibited. Land distribution and conservation will be carried out through farmer cooperatives.

8. Marketing facilities and services will be provided to assist farmers in the disposal of their products.

9. Self-reliance and self-help will be promoted among farmers by encouraging the establishment of farmer cooperatives and other associations.

10. A suitable system of agricultural credit will be built.

11. Other Government services to the farm population will be improved and expanded, such as education, rural development, public health, development of industries using farm products as raw materials, training in farm leadership, young farmers activities, etc.

12. At present there is a great shortage of the required technical manpower, such as extension officers and other trained personnel and the number has to be increased. It will be necessary to obtain larger budget appropriations to reach the technical manpower strength required.

Thus it is apparent that an adequately trained and staffed extension service would seem to be one of the necessary factors leading to future progress and expansion of the agricultural sector of the Thai economy. This demand for trained manpower with adequate technical skills calls for investment in agricultural education. Recognizing this fact, the Plan considers such an investment to be of high priority in the years to come.

Agriculture and Human Resources Development

Although it has always been fairly obvious that the end and aim of economic development is human betterment, experts have been slower to recognize that the development and effective utilization of human resources is, in turn, strategic to economic development itself.[4] In underdeveloped societies individuals are compelled to devote most of their time and energies toward earning a living. Therefore, it is essential that education be devoted to increasing the productivity of the individual; i.e., providing him with the means for earning a better living. Human resource development in the economic sense of the word must be a major goal of society.

In this era of national planning we have grown accustomed to thinking in national terms and national programs. But in agriculture the ultimate decision rests with each individual farmer. In developing societies farming is a way of life and the farm is an integral part of the social structure. Economic development requires that this structure adapt itself to technological and organizational changes. Unfortunately, the importance of the human factor in agricultural development, and the necessity of taking it into account in developmental planning is not always fully recognized. Changes cannot be executed unless the farmer accepts them! National macro-planning must take into account micro-planning at the level of the individual farm unit.

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[4] Although other aspects of education are not within the immediate scope of this study, one certainly must not overlook or minimize the importance of education as a consumption right, as a social goal (a means of equalizing life-chances of people) and as a political necessity in democratic societies. In addition, many indirect economic benefits, while not measurable, can be attributed to education.

One of the men addressing himself to the question of human resources development is Theodore Schultz, a pioneer in the movement to recognize the qualitative importance of human resources in economic development. Schultz recently countered the argument that an agricultural economy only requires a handful of skilled people.[5] He believes that it is unlikely that agriculture can ever be improved on a mass scale without raising the level of skills and knowledge of the cultivators. As a case in point, he cites Japan. Even though the basic structure of proprietary control, the general form of the producing unit, and the overall pattern of rural culture seem to have been relatively unaltered between 1878 and 1917, Japan increased agricultural productivity per worker as well as per hectare.[6] With a denser population and poorer natural resources than either China or India, Japan expanded food production much more rapidly than they. Schultz contends that the program of education in rural Japan since 1880 has been a key factor in bringing about this outstanding record of growth in agricultural production on a land base that is largely fixed.

In an earlier publication Schultz reviewed the agricultural development experiences of several countries and concluded that, "Those countries that have the best records have not won them because they have the best land, or mainly because they have increased rapidly the reproducible capital in agriculture, but largely because they have acquired the skills and knowledge required, and a confidence in their ability to develop a modern agriculture."[7] Speaking in more general terms, Schultz hypothesized that in low-income countries the marginal product of non-human capital is zero or close to zero as long as the level of human capital input is fixed. In other words, a balance must be struck between inputs of human and non-human capital, since in early-stage agriculture the rate of substitution between them is probably very limited.[8]

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[5] Theodore W. Schultz, "Investment in Human Capital in Poor Countries," Foreign Trade and Human Capital, ed. Paul D. Zook (Dallas: Southern Methodist University Press, 1962), pp. 4-7.

[6] It has been estimated that the productivity of agricultural labor (net output/labor force in agriculture) increased 2.6% annually--a 236% increase in productivity per agricultural worker during this period; see K. Ohkawa and H. Rosovsky, "The Role of Agriculture in Modern Japanese Economic Development," Economic Development and Cultural Change, IX, Part ii (1960), pp. 43-67.

[7] Theodore W. Schultz, "U. S. Endeavors to Assist Low-Income Countries Improve Economic Capabilities of Their People," Journal of Farm Economics, XLIII (December, 1961), p. 1072.

What knowledge must a farmer have to improve his productive capacity? On the technical side he needs knowledge about new inputs which are available and which will in fact produce favorable results such as new seed varieties, breed of animals, animal feeds, fertilizers, pesticides, farm implements and equipment. He also needs knowledge about new techniques of production such as time and technique of planting and harvesting--depth and spacing of seeds, control of water levels (if irrigated); crop or animal raising and protection--weeding, spraying, fertilizing, weaning, feeding, and inoculation; crop rotation and soil conservation.

However, the technical knowledge described above will not suffice to make a farm a profitable enterprise. Land, labor and capital need to be economically combined and coordinated. This requires management. Farm management decisions cover a wide range of subject matter. The farmer must (1) analyze costs and returns for alternative enterprises, and (2) make an economic comparison among possible enterprises or combination of enterprises. The farmer must then decide how best to organize and utilize the resources at his command in order to engage profitably in the enterprises selected. He must also determine what disposition will be made of the output of the farm; i.e., how much to consume, how much to save, how much to sell, when to sell, how to prepare his goods for the market, and so on. Finally, he must decide how to utilize the income derived from his sale of goods.

The preceding discussion is not intended to convey the impression that the amount of knowledge, and the amount of application of knowledge, of the farmer are the sole determinants of agricultural productivity. It should be obvious that there are many factors--historical, ecological, technological, institutional, socio-cultural, etc.--which set the limits of productive capacity for any given farmer.[9] One factor that deserves special mention is the extent to which a nation recognizes the importance of agricultural research in identifying, developing and testing improved production possibilities. Yet within those limits it is the behavior of the large aggregate of farmers which in the final analysis makes for economic growth or stagnation of agriculture. It is also the behavior of these farmers which may eventually lead to modifications of at least some of the current limiting factors.

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[8] For an excellent discussion on this general subject of the role of education in agricultural development, see Clifton R. Wharton, Jr., "Education and Agricultural Growth" (New York: Council on Economic and Cultural Affairs, Inc., 1963). (Mimeographed)

[9] It is also the existence of these factors which makes it dangerous to infer that with increased emphasis on human resources development all countries would or could develop as rapidly as some model country has done. Nevertheless, as more empirical evidence is gathered, trends can be charted and used as direction signals or guideposts.

Agricultural development requires an environment in which the farmer becomes aware of the existence of alternatives and of a wider scope for decision making. The possibility of change must be recognized and desired by farmers and the necessary knowledge, and skill in applying that knowledge, to produce this change must be made available to farmers--both for the farmers themselves and for farm service workers who disseminate the knowledge required by the farmer in order for him to improve his agricultural productivity. If one looks upon agricultural growth as the result of individual changes on millions and millions of farms, then the fundamental problem of such growth is one of education.

The Study

This study has been designed to explore the extent to which agricultural education is contributing to the development of the agricultural sector of the Thai economy. Agricultural education is defined here as formal education related to the field of agriculture. The population of this study is defined as students above the elementary level who will most likely engage in agricultural pursuits upon completion of their formal schooling, either as farmers or as farm-service workers. For Thailand this means students attending rural secondary schools (grades 8-10, both academic and vocational agricultural), higher agricultural secondary schools (grades 11-13), and technical agricultural schools (grades 14-15).

It was also considered important to study the persons who will be teaching these students and this has necessitated a look at the agricultural teacher training school (grades 14-15), and the Bachelor's degree program in agricultural education.

The study is centered around the following questions:

1. Does the Thai Government indicate a recognition of the importance of agricultural education in its economic planning, its educational planning and in its fiscal policies?
2. To what extent is the present organizational structure of agricultural education designed to facilitate agricultural development?

a. To what extent is provision made for articulation among the various levels of agricultural schools and between these schools and the academic schools in terms of entrance requirements, practical training, general education, examinations, guidance and placement services, teaching methods, competence of teaching staff, and supervisory activities?

b. To what extent has liaison been established between the Ministry of Education and the Ministry of Agriculture; between manpower planning groups, the Ministry of Education, and school selection, guidance and placement services; and between agricultural education programs and the agricultural extension service?

3. To what extent is agricultural education contributing to the development of farm service groups; i.e., extension workers, community development workers, cooperative officers, etc.?

a. On what basis and with what backgrounds are students entering agricultural education programs?

b. What goals do these students have?

c. How many graduates of these schools are employed and, of those employed, how many are working in the areas in which trained?

d. Does their level of training satisfy the requirements of their jobs?

e. Is there a proper balance between the demand for these graduates and the supply?

Determination of questions to be included in this study was based upon the writer's own professional experience and a review of the literature pertaining to agricultural education in the United States, in Europe and in a number of Asian nations. The questions raised, in effect, form a model of the critical components and linkages that the writer considers essential in order for agricultural education to contribute to agricultural development in Thailand. This model is presented graphically in Figure 1. The components of the model are defined as the policies and programs (including facilities and staffs) that the Ministry of Education puts into the development of the agricultural schools. Linkages consist of all aspects of coordination and cooperation, both within and without the Ministry of Education, that are considered essential elements of the program. Thus, under the category of components would fall school admission policies, the curriculum and instruction,

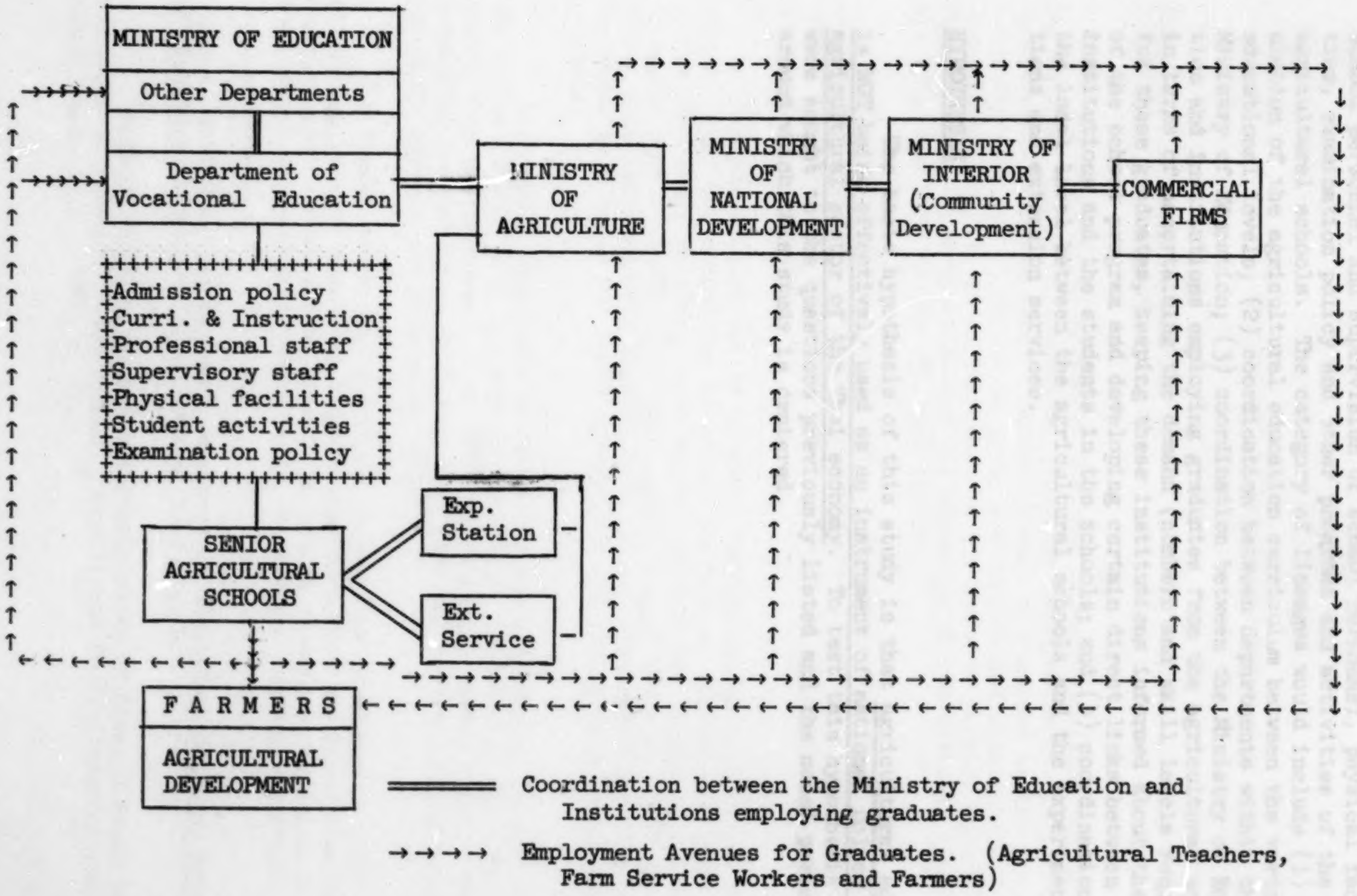
MINISTRY OF EDUCATION
Other Departments
Department of Vocational Education
Admission policy
Curri. & Instruction
Professional staff
Supervisory staff
Physical facilities
Student activities
Examination policy
SENIOR AGRICULTURAL SCHOOLS
Exp. Station
Ext. Service
MINISTRY OF AGRICULTURE
MINISTRY OF NATIONAL DEVELOPMENT
MINISTRY OF INTERIOR (Community Development)
COMMERCIAL FIRMS
FARMERS
AGRICULTURAL DEVELOPMENT
Coordination between the Ministry of Education and Institutions employing graduates.
→→→→ Employment Avenues for Graduates. (Agricultural Teachers, Farm Service Workers and Farmers)

Figure 1. A Model of Agricultural Education for Thailand.

school personnel and supervision of school personnel, physical facilities, examination policy and other programs and activities of the agricultural schools. The category of linkages would include (1) articulation of the agricultural education curriculum between the various educational levels; (2) coordination between departments within the Ministry of Education; (3) coordination between the Ministry of Education and institutions employing graduates from the agricultural schools in terms of ascertaining the demand (numbers and skill levels required) for these graduates, keeping these institutions informed about the nature of the school program and developing certain direct links between these institutions and the students in the schools; and (4) coordination at the local level between the agricultural schools and the experiment stations and extension services.

HYPOTHESIS

The basic hypothesis of this study is that agricultural education is NOT being effectively used as an instrument of national policy for the agricultural sector of the Thai economy. To test this hypothesis answers were sought to the questions previously listed and the model presented around which this study is centered.

THE EDUCATIONAL SYSTEM IN THAILAND

Educational Development: Past Situation and Future Goals

The educational system of Thailand has a solid legal foundation. The National Scheme of Education, 1960, the legislation now in force, specifically provides that: "Education must be regarded as the State's prime function and it should be given due support and stimulation."[1] Thus, under the law, it is incumbent on the State to provide appropriate facilities and opportunities for the education of its citizens within the scope and aims of the relevant statute.

This tremendous task is shared between the Ministry of Education, which takes charge of education from the pre-primary up to the secondary level, and the Prime Minister's Office, which is responsible for higher or university education.

The educational law by no means imposes obligations on the State alone. Under the compulsory education provisions, parents are required to see that their children, with certain exceptions, attend school between the ages of 8 and 15 or until completion of Grade 4. This is to ensure that they properly benefit from the education provided free by the State as a basis for their occupations and living as good and useful citizens.

Although a Department of Education was established in 1887, it was not until 1892 when the Ministry of Public Instruction was established that the organization of national education really began. The underlying purpose of education at that time was to train young people for civil service and government work.[2]

A formal vocational education program was developed in 1889. It was called special education and was separated from the general education program. There was an attempt to set up vocational training in such trades as surveying, handicrafts, mechanical trades, commercial subjects, and gardening. But only handicraft programs (niello-works, carving, drawing and painting) were organized in the early days. Most of these programs were located in the Bangkok area.

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[1] Government of Thailand, Ministry of Education, National Scheme of Education (Bangkok: E.T.O. Press, 1962), p. 8.

[2] Amphorn Meesook, "The Educational System of Siam, A Study in the Light of Comparative Education" (unpublished Ph.D. dissertation, Radcliffe College, 1946), p. 73.

The First National Scheme of Education was adopted in 1913. It was the Government's intention to urge everyone to have some vocational training before leaving school. However, due to lack of funds, the Scheme could not be adequately carried out. Vocational agriculture education was first initiated in 1917 through the opening of an agricultural teacher training school to prepare agriculture teachers for teaching in primary schools. The school was established by Phrya Thepsart Sathit, then Minister of Education, who had studied in England and observed agricultural education in the United States.[3]

The Second National Scheme of Education (1921) marked an important step in the educational development of Thailand, for it was designed in correlation with the Compulsory Primary Education Act, which was promulgated in the same year. The act required three years of primary education for students intending to proceed to the secondary school and two additional years of general and vocational education for those planning to terminate their education at the end of primary school. The vocational subject almost universally chosen by the students was agriculture. In order to provide this training the Ministry of Public Instruction founded several agricultural teacher training colleges whose graduates returned to their provinces to become teachers in provincial agricultural teacher training schools. Graduates from these schools, in turn, taught agriculture in the provincial primary schools. The first vocational agriculture school was established in 1925 and closed in 1927 because of insufficient enrollment.

In 1932 the form of government of the country was changed from absolute to constitutional monarchy. The new democratic government realized that education was one of the things which needed much reorganization and development. The national system of education was revised. Its aim was to provide the people with academic, moral and physical education and skill in handicraft, thus rendering them democratic in their outlook and capable of earning their living.[4]

The Constitution of Thailand, promulgated in 1932, contains the following Articles relevant to education:

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[3] Everett M. Cree, "A Projected Plan for Administration of Agricultural Education in Thailand" (unpublished Master's thesis, Iowa State University, 1962), p. 22.

[4] Amphorn Meesook, "Education in Thailand," Bulletin, II, No. 1 (Bangkok: The Secretariat, Association of Southeast Asian Institutions of Higher Learning, 1958), p. 25.

> Article 26: Every person enjoys full liberty of property, speech, writing, printing, publication, education, assemblage, forming an association, forming a political party, in accordance with the law.
>
> Article 36: Every individual shall enjoy absolute freedom in education providing that the institutions are not run contrary to the educational laws or to the public safety.
>
> Article 56: Every citizen must receive primary education.
>
> Article 63: It is the duty of the State to promote and foster education. All institutions must be under the care of the State. Education is the responsibility of the State.
>
> Article 64: Primary education in State and municipal schools shall be given free of charge. It is the duty of the State to equip the schools suitably.[5]

The Compulsory Education Act of 1935 made school attendance compulsory for children between 8 and 15 years of age, extended the previous three years of primary school to four and added two years of terminal vocational education beyond the fourth grade for students not going into secondary education. The latter was no longer compulsory, however, and enrollments in grades 5 and 6 dropped to around 10,000 by 1937 as contrasted with almost 80,000 in 1932.[6]

Yet it was not the intention of the Government to devalue vocational education. At this time three types of vocational schools (carpentry, weaving, and agriculture) began to be established throughout the Kingdom.[7] Four of these were agriculture schools which offered a four year course. That vocational education was rated as an investment can be verified by the fact that in 1937 a special grant of 1,140,000 Baht ($57,000) was voted from the capital reserve for vocational education--the first time that the capital reserve was used for education.

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[5] UNESCO, "The Statistical Reporting of Educational Systems," World Survey of Education, Handbook of Educational Organizations and Statistics (Paris: UNESCO, 1955), pp. 597-605.

[6] Manich Jumsai, Compulsory Education in Thailand, UNESCO Studies on Compulsory Education--VIII (Paris: UNESCO, 1951), p. 48.

[7] John S. Furnivall, in Educational Progress in Southeast Asia (New York: International Secretariat, Institute of Pacific Relations, 1943), p. 18, claims that these schools were established to break the tradition of using secondary education as a means to a political office.

Nevertheless, for the most part the vocational schools had to finance their own current operating expenses. They had to help themselves in terms of equipment and supplies. Leadership and teacher preparation received very little attention.

During the two years of vocational study beyond the fourth grade, a large part of the curriculum consisted of general subjects and, as a result, it because a widely prevalent practice to recruit candidates for the provincial teacher training schools from among the boys in this program. Therefore, boys entered these schools with the view of finally becoming teachers in primary schools rather than of learning a trade or returning to farming.[8]

Another pertinent Act which should be mentioned is the National Education Council Act of 1951 which set up the National Council of Education as an instrument for improving educational plans. Finally came the National Scheme of Education 1960, on which the educational system is currently based.

In terms of non-economic goals, the Scheme calls for Thai people who are "moral and cultured citizens, with discipline and responsibility, with good health, mental and physical, and with a democratic outlook." It proclaims that "education shall be carried out to serve the needs of the individual as well as those of society."[9]

In relating education to national development, the Scheme calls for education which is "in harmony with the economic and political system of the country." Both intellectual and practical education are called for. Intellectual education is to deal with "the improvement of thinking, and with the acquisition of knowledge, techniques and principles conducive to a useful and happy life." Practical education "deals with habits of industry, perserverance, and with training in manual skills that are basic to a good living and occupation."[10]

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[8] Meesook, "The Educational System of Siam . . .," pp. 134-137. It should be noted that this same problem existed, but at a higher level, until 1960. Most of the students entering Grades 8-10 in the vocational schools were doing so with the expectation of receiving an elementary teaching position upon graduation. However, in 1960, this was no longer permitted. Students who now want to enter teaching must take an additional two years of teacher training beyond Grade 10.

[9] Government of Thailand, Ministry of Education, National Scheme of Education (Bangkok: E.T.O. Press, 1962), p. 1.

[10] Ibid, p. 2.

While the Scheme states Thailand's educational objectives in only a very general way, it does specifically provide for the eventual extension of compulsory education from four to seven years. No time limit is set for this extension.

The Government of Thailand's six-year National Economic Development Plan recognizes the necessity to utilize effectively education as an instrument of national economic policy. It identifies important measures for the improvement of education at all levels.

At the secondary level the Plan states that regional comprehensive schools will be established on a pilot basis and if successful will be permanently integrated with the secondary school system. For the vocational secondary schools the Plan calls for (1) strong financial support, (2) provision for necessary teaching and training equipment and materials for all levels and the production of an adequate number of qualified teachers, (3) highest priority to be given to practical training and consultations with employing institutions and agencies to insure that the school curriculum is geared to realistic and practical needs, and (4) close coordination between the Ministry of Agriculture and the agricultural schools toward the ends of strengthening the academic standards of these schools and providing practical training in agricultural stations.[11]

Education in Thailand Today

Structure of education. The educational system is organized with a view to serving the needs of economic development and of society as a whole, while at the same time satisfying individual expectations of education. As in all other developing countries, the educational system in Thailand bears the heaviest burden in the overall development of human resources and manpower.

Structurally the system is divided into four levels--pre-primary, elementary, secondary and higher education. Elementary education is divided into junior grades (4 years compulsory), and senior grades (3 years), for a total of seven years. Secondary education is divided into two streams. The general stream has three grades at lower and two grades at upper level. In the vocational stream there are three lower and three upper grades. The higher educational level consists of universities and other institutions of higher learning. The usual length for higher education is four years. So for practical purposes the system may be regarded as a 7-5-4 one. Mention should also be made of teacher training which may be either two or four years beyond grade 10 in teacher training schools or a regular four-year degree program in an institution of higher learning.

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[11] Thai Dev. Plan, op. cit., pp. 139-140.

Figure 2 details the structure of the school system with a variety of vocational school types. Improved articulation of the school system is being achieved through progressive upgrading of the vocational schools.

Present enrollment. The 1961 pyramid of school enrollment (Figure 3) shows a definite pattern in the allocation of students. The broad base of elementary education reveals that most of the effort has been devoted to this level, whereas secondary and higher education are for the selected few. Less than 15% of those who complete the fourth grade eventually obtain some form of secondary education and only 5% of those who originally enter a secondary school go on to some type of advanced school.

In Figure 4 one observes that the post-elementary grades are characterized by a large number of students within the general (or academic) stream as compared with those in the vocational stream. There are markedly lower enrollments in the lower vocational levels, grades 8-10, than in the upper vocational grades 11-13. Fairly heavy enrollment in teacher education at grades 11-12 represent the main source of supply for elementary teachers. Those in the upper levels are the main source of supply for secondary schools and teacher training colleges. The professional university stream narrows considerably as it moves from the 13th to the 16th grade levels, accounted for largely by persons in less than four-year courses, failures and drop-outs.

The pyramid gives a static picture representing a cross-section of enrollments at one particular date. In the basic studies Thailand has recently carried out, attention has been given to trends over the past few years. These explain the dynamics of the factors which have produced the present pyramid and they may be summed up as:

(1) an increasing intake year-by-year in grade 1,

(2) an evidence of a high rate of pupil failure in the primary grades,

(3) an effort by the Ministry to prolong compulsory primary education to grade 7, with more facilities,

(4) a steady growth of lower secondary provisions and enrollments (grades 8-10) so that wastage is reduced,

(5) a drop in the vocational education component at grades 8-9-10, the result of a policy to restrict expansion and the diminishing appeal of these schools,

(6) a limited further education after grade 12, despite expansion of universities.

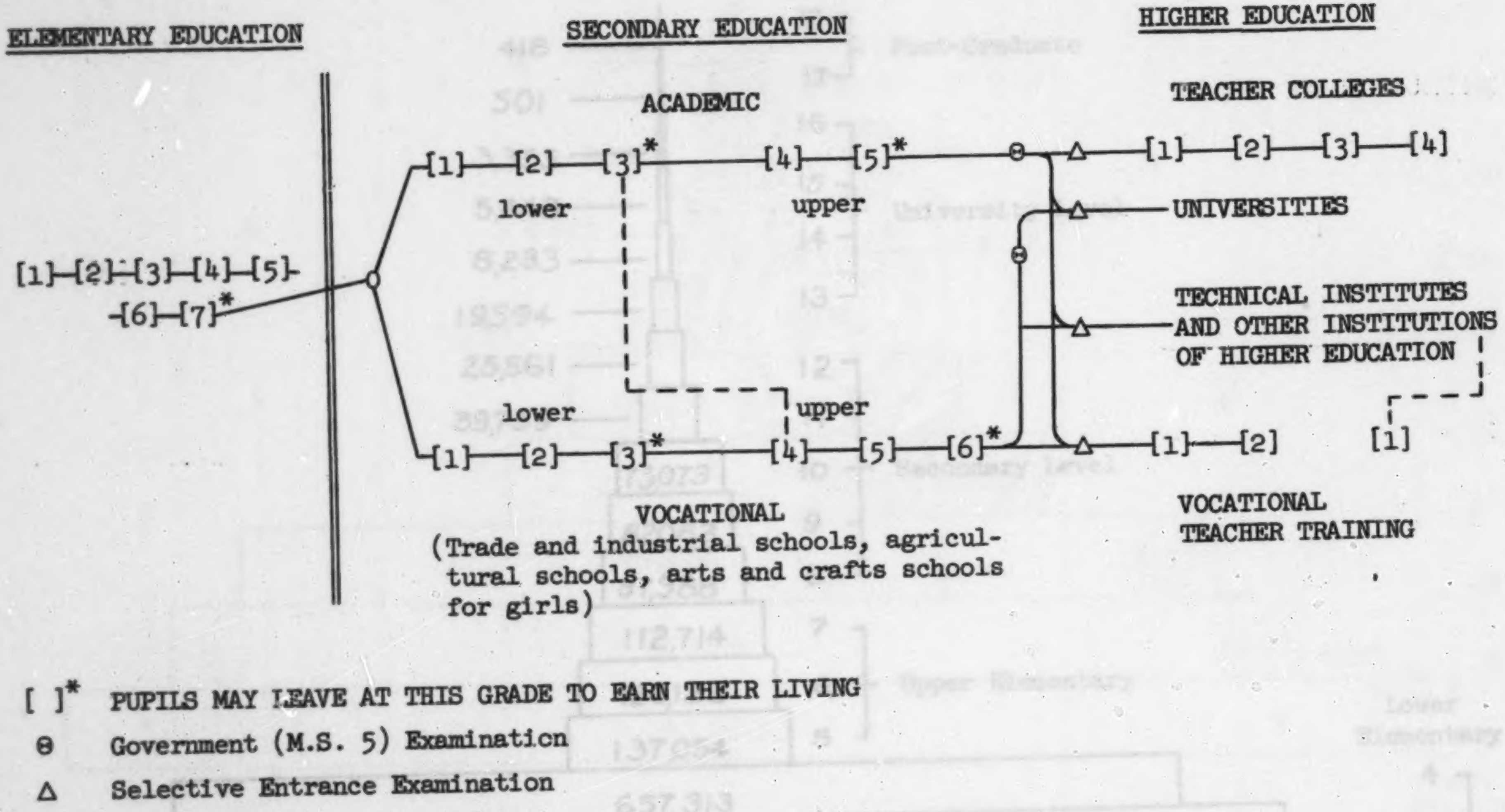
ELEMENTARY EDUCATION
SECONDARY EDUCATION
HIGHER EDUCATION
[1]–[2]–[3]–[4]–[5]–[6]–[7]*
ACADEMIC
[1]–[2]–[3]*–[4]–[5]*
lower
upper
VOCATIONAL
[1]–[2]–[3]*–[4]–[5]–[6]*
lower
upper
(Trade and industrial schools, agricultural schools, arts and crafts schools for girls)
TEACHER COLLEGES
[1]–[2]–[3]–[4]
UNIVERSITIES
TECHNICAL INSTITUTES AND OTHER INSTITUTIONS OF HIGHER EDUCATION
[1]–[2]
[1]
VOCATIONAL TEACHER TRAINING
[ ]* PUPILS MAY LEAVE AT THIS GRADE TO EARN THEIR LIVING
ϴ Government (M.S. 5) Examination
Δ Selective Entrance Examination

Figure 2. Structure of the Educational System. Source: Educational Planning Office, Ministry of Education.

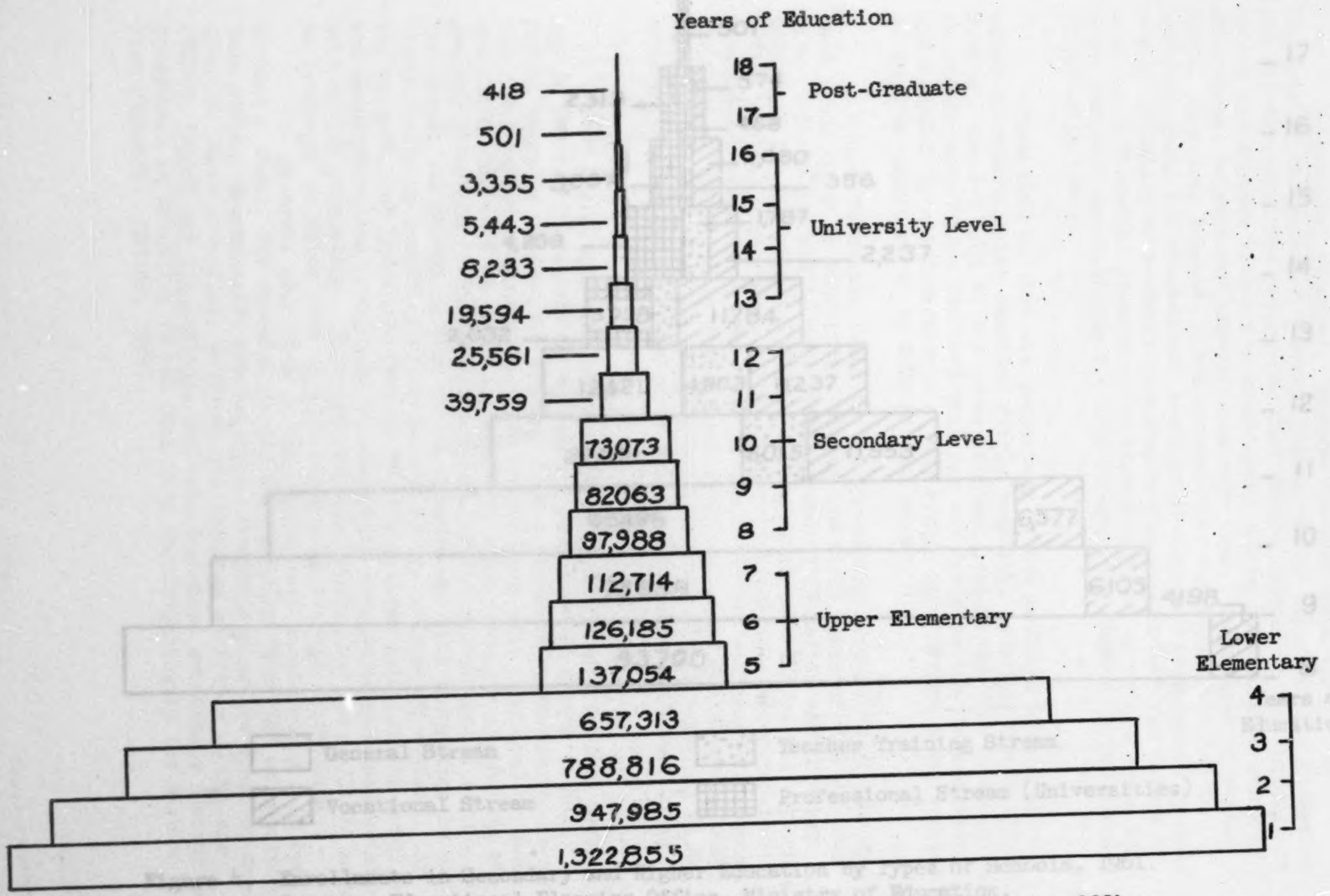

Figure 3. Public and Private School Enrollments, 1961. Source: Educational Planning Office, Ministry of Education.

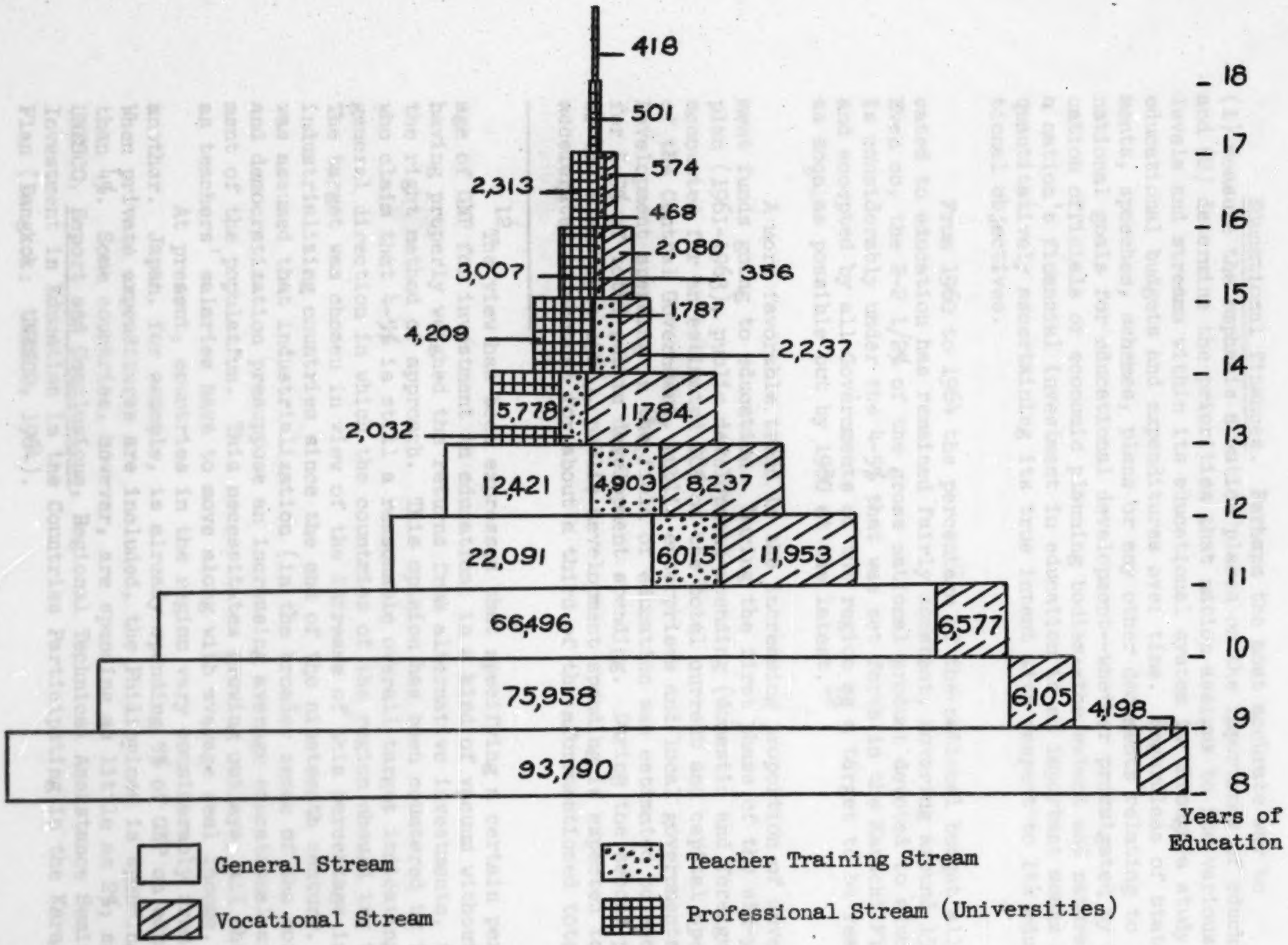

Figure 4. Enrollments in Secondary and Higher Education by Types of Schools, 1961.
Source: Educational Planning Office, Ministry of Education.

Educational finances. Perhaps the most accurate way to (1) measure the emphasis a nation places on the importance of education and (2) determine the priorities that nation assigns to the various levels and streams within its educational system is through a study of educational budgets and expenditures over time. Regardless of statements, speeches, schemes, plans or any other documents relating to national goals for educational development--whether promulgated by education officials or economic planning bodies--the extent and nature of a nation's financial investment in education is an important means of quantitatively ascertaining its true intent with respect to its educational objectives.

From 1960 to 1964 the percentage of the national budget allocated to education has remained fairly constant, hovering around 15%. Even so, the 2-2 1/2% of the gross national product devoted to education is considerably under the 4-5% that was set forth in the Karachi Plan and accepted by all Governments of the region as a target to be reached as soon as possible but by 1980 at the latest.[12]

A more favorable trend is the increasing proportion of development funds going to education. During the first phase of the six-year plan (1961-1963), public development spending (domestic and foreign) accounted for an estimated 28% of the total current and capital spending of the Central Government, public enterprises and local governments. Development spending in the field of education was estimated to account for 5.9% of total public development spending. During the second phase of the Plan (1964-1966), public development spending is expected to be accelerated to account for about a third of the aforementioned total current and capital spending. Development spending in the field of education for this second phase period is also expected to be accelerated and has been projected to account for 8.9% of total public development spending.[13]

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[12] The view has been expressed that specifying a certain percentage of GNP for investment in education, in a kind of vacuum without having properly weighed the returns from alternative investments, is not the right method of approach. This opinion has been countered by those who claim that 4-5% is still a reasonable overall target indicating the general direction in which the countries of the region should try to go. The target was chosen in view of the increase of this percentage in all industrializing countries since the end of the nineteenth century. It was assumed that industrialization (in the broader sense of the word) and democratization presuppose an increasing average educational attainment of the population. This necessitates growing outlays, all the more as teachers' salaries have to move along with average real income.

At present, countries in the region vary considerably from one another. Japan, for example, is already spending 5% of GNP on education. When private expenditures are included, the Philippines is spending more than 4%. Some countries, however, are spending as little as 2%; see UNESCO, Report and Conclusions, Regional Technical Assistance Seminar on Investment in Education in the Countries Participating in the Karachi Plan (Bangkok: UNESCO, 1964).

From 1960 to 1964 the percentage of education funds budgeted to primary and secondary education has decreased somewhat, while the percentage budgeted to vocational education has increased slightly (Table 1). The vocational education budget is expected to be higher next year due to the impetus from the anticipated IBRD loan for educational development and the increasing Thai Government emphasis on vocational education. Actually the percentage of Ministry of Education budget devoted to vocational education is consistent with similar budget allocations of other countries in the region. At the Regional Technical Assistance Seminar on Investment in Education held in Bangkok by UNESCO in April, 1964, both the Republic of China and the Philippines reported that approximately 7% of their educational budgets went to vocational education.

One broad caution needs to be observed in interpreting expenditures. The national vocational education budget is only one source of income of the vocational schools. They also derive income from such sources as student fees, sale of products and/or services and from foreign aid. Income from sale of products varies from school to school and may be quite large, for example, in the case of certain agricultural schools which have large school farms. However, since similar circumstances most likely exist within other countries of the region, inter-country comparisons of investment in vocational education would still seem to be appropriate.

The Status of Vocational Education

The importance of education in the economic development of Thailand has already been emphasized. The National Economic Development Plan gives recognition to the vocational aspects of the problem:

> A rising level of per capita output, if it is to be sustained, will call for more efficient employment and higher productivity of the available labour force. The total population of Thailand is at present about 30 million,

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[13] These figures must be interpreted with caution, since the definition of what constitutes "development" expenditures, particularly in the field of education, is not always precise (Thai Dev. Plan, op. cit., p. 27).

TABLE 1

MINISTRY OF EDUCATION BUDGET ALLOTTED TO DIFFERENT LEVELS AND TYPES OF EDUCATION 1960-1964

	YEAR				
	1960	1961[a]	1962	1963	1964
Total Budget for Ministry of Education (in million baht)[b]	1,236.37	1,026.16	1,468.43	1,624.07	1,749.39
Budget for Primary Education (in million baht)	822.24	665.08	952.77	1,042.50	1,136.06
% of Primary Budget to Total Budget	66.5	64.8	64.9	64.2	64.9
Budget for Secondary Education (in million baht)	186.46	153.95	230.96	247.49	247.25
% of Secondary Budget to Total Budget	15.1	15.0	15.7	15.2	14.1
Budget for Vocational Education (in million baht)	89.99	69.77	109.98	121.56	133.54
% of Vocational Budget to Total Budget	7.3	6.8	7.5	7.6	7.6

[a] Fiscal year 1961 covered only 9 months.

[b] Baht 20 = U. S. $1.00

Source: Educational Planning Office, Ministry of Education

> in ten years time it is likely to be 10 million more. In order to provide a rising standard of living for this growing population an increasing number of productive employment opportunities will have to be found for persons of working age in both rural and urban areas; and this, in turn, will demand increasing measures to promote technological advance. There is, in other words, a need to integrate the Education Plan with the National Economic Development Plan. *During the next three years, therefore, while general education will be improved, emphasis will be placed on the expansion and improvement of vocational education and technical training so that as soon as possible the requirements of trained personnel of different types can be met from within the country and the basis provided for continuing technological progress.*[14] Attempts will also be made through a Manpower Planning Program to assess the requirements of different categories and levels of technical skill and knowledge with a view to adjusting the supply of human resources to current and future employment requirements. Manpower planning will be closely coordinated with economic planning and will provide a sound basis for improvements in human resources utilisation.[15]

Two recent and dramatic developments, indicating the growing determination on the part of the Thai Government to expand rapidly its investment in education were itemized in the following newspaper article:

> Lt. Gen. Amnuay Chyarote, Spokesman for the Office of the Prime Minister, told newsmen at an interview March 31 Afternoon that the Cabinet at its meeting earlier in the day had approved the request and recommendation of the Committee on Education Loans for an investment of 1,000 million baht for the period 1965-1970, in addition to the pledge of an annual budget increase for educational purposes at the rate of 10%. The Cabinet also accepted the recommendation of this committee for the priorities program with emphasis on vocational and college education in the fields demanded by the government's economic development program.[16]

The decision to seek for the first time an international loan for educational purposes is extremely significant in light of the general policy of the Thai Government to become increasingly self-reliant in financing public development programs. Anticipated foreign loans for 1964-1966 represent a smaller percentage of the total estimated resources than in 1961-1963.[17]

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[14] Italics mine.

[15] Thai Dev. Plan, op. cit., p. 11.

[16] Siam Rath, April 2, 1964.

The preceding section on the educational system in Thailand has laid a foundation for an understanding of the difficulties that are being faced in the attempt to develop education in order to achieve national purposes. This section will now look more specifically at the problems being encountered in the area of vocational education.

Types of schools and training. The function of the Department of Vocational Education is to promote vocational education and training by preparing youth to enter occupations in all trades as well as preparing them for good citizenship. At present the Department has 198 vocational schools and conducts programs at the junior, senior and technical levels. These levels may be classified as follows:

1. Junior vocational level (grades 8-10): provides a three-year curriculum in such trades as building and construction, cabinet-making, masonry, painting, blacksmithing, metal work, leather craft, small-boat building, weaving, tailoring, home economics, agriculture, and auto-mechanics. This type of school is diminishing.
2. Senior vocational level (grades 11-13): provides a three-year curriculum in carpentry, building and construction, commercial, secretarial science, engineering trades, tailoring, language, arts and crafts, agriculture, welding and sheet metal, radio and telecommunications, electrical, auto-mechanics, and machine shop.
3. Technical Institutes of junior college level (grades 14-15): These provide two-year courses, after students have completed courses at the higher vocational level, in agriculture, auto-mechanics, radio, electricity, building construction, carpentry, metal work, machine shop, secretarial training, accounting, retailing, tailoring, home economics, surveying, printing, photography, and industrial arts and vocational teacher education.[18]

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[17] Thai Dev. Plan, op. cit., p. 33.

[18] This is a very new development in the field of agricultural education. At present there are only two agricultural schools offering work at this level.

Table 2 shows the number and types of vocational schools. It should be noted that, except for the Technical Institutes, most of them are specialized secondary schools.

Until recently, most of the trade and technical schools in the provinces had limited trade programs. There was little or no training in trades other than carpentry and construction. To cope with the changing economy, a number of efforts have been made to improve the schools and the training they offer.[19]

The schools and employing institutions. At present, there is no formal apprentice training in Thailand. Apprentice training is an organized system for providing young people with the manipulative skills and technical or theoretical knowledge needed for competent performance in skilled occupations. The program usually involves cooperation between schools and industry and labor management. This program of training is organized in many industrial countries. In Thailand there is only informal apprentice training where young children learn their trades through observation of parents and relatives at actual trade activities. This is particularly true in the case of the children of farmers, craftsmen, fishermen, etc. Training within industry is operated in some private and government concerns such as State Railway of Thailand and the Royal Thai Naval Dock-yards. Also some government departments now conduct special pre-service training programs for new employees. In most cases, this specialized training is only for those who have had formal vocational training.

Few vocational schools send their students to do on-the-job training before graduation. This is due to the fact that in many cases the schools cannot control the quality of training programs and lack adequate contacts with employing institutions.

Problems confronting the development of vocational education. Basically, the vocational school system built up in the past (devoted mainly to carpentry and agriculture) is not suited to the modern demands of an expanding economy. In the opinion of responsible officials in the Ministry of Education, the principal difficulties relate to planning for proper physical plant, equipment, supplies; qualified staff with technical competence; guidance, placement and follow-up programs; and research. Problems confronting vocational education in Thailand may be summarized as follows:

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[19] These include the SEATO Skilled Labor Project, Thai-Australian Skilled Labor Project, Thai-German Technical School Project and Telecommunications Training Center. Several government departments also offer a specific training program for their immediate needs.

TABLE 2

NUMBER AND TYPES OF VOCATIONAL SCHOOLS, 1963

Type	Number of Schools
Technical Institute	6
Vocational Teacher Training College	1
Arts and Crafts	1
Commercial	3
Foreign Language and Secretarial	1
Building and Construction	3
Engineering Trades	5
Telecommunications	1
Tailoring	1
Agriculture	19
Home Economics	73
Weaving	1
Trade School for Boys	73
Boat-Building	1
Niello-Works	1
Hair-Dressing	2
Leather crafts	2
Short-Course Training	4
TOTAL	198

Source: Educational Planning Office, Ministry of Education

1. Lack of an efficient teacher training program. A large number of present teachers have either educational training in teaching methods, or practical experience with the trade or skill, but seldom both. Some teachers have only a theoretical technical knowledge of their subject, but no practical experience in the field or trade teaching. It is suggested that the solution may lie in training the tradesman for a teaching career.

2. Shortage of equipment and supplies. Except for those which have been aided by external technical assistance programs, most vocational schools have very limited tools and equipment. Most of the existing equipment needs to be repaired, modernized or replaced. Supplies are also needed for effective training.

3. Lack of textbooks and other teaching materials. Textbooks need to be provided in both Thai and English with an eye to the problems of teaching vocational technical subjects.

4. Lack of trained supervisors and administrators. Probably the greatest need is for well qualified supervisors and administrators to develop the program for vocational technical education.

5. Lack of teaching aids. The shortage in this category is very acute; there is an urgent need for audio-visual aids and science laboratory equipment.

6. Lack of training and maintenance facilities. Supplies and maintenance facilities are very inadequate in most of the vocational and technical schools.

7. Lack of a technical library. Most vocational schools have few, if any, books and these are mainly in English. Students and teachers do not have sufficient command of the language to be able to use the library to full advantage. In any event technical libraries need more textbooks in the Thai language.

Size and location of the vocational school system. Approximately 55,000 students are enrolled in schools under the Department of Vocational Education; of these, about 10,000 are pursuing industrial trades and about 2,000 are in agriculture. Enrollment in the lower level (grades 5-7) has been progressively diminished and finally, in 1963, suppressed as a matter of deliberate Departmental policy. Peak enrollments at all levels were reached between 1958 and 1961, because of very large admissions before 1958 which led to overcrowded conditions and a two-shift system. This was controlled after 1961 because of the Departmental policy to improve quality.

Table 3, on students graduating from vocational schools, shows the very small numbers coming from agricultural schools.

Administration of vocational schools. Figure 5 shows the organization of the Ministry's Department of Vocational Education. School administration in the provinces is conducted by the Director-General through the provincial education officer, who is closely supervised by the provincial Governor. In 1963, the Department of Vocational Education had a Supervisory Unit of 27, ten of whom were on loan to serve in other capacities. All supervisors are placed centrally and there are no vocational school supervisors in the provincial offices.

At the level of school administration, most vocational schools do not have senior instructors to act as heads of divisions. The principal, therefore, has to supervise all the schoolwork--administration, academic teaching and shop teaching and organization. However, in some of the better organized schools where personnel are available and trained for positions of leadership, some of the principals' responsibilities are delegated.

Vocational curriculum.[20] The objectives of the vocational curriculum at the lower secondary level (grades 8-10) are as follows:

1. The students obtain knowledge and experience necessary to enter semi-skilled occupations.
2. The students are prepared to continue studying at higher levels.
3. The students can appreciate art, culture, and nature for useful living as a member of society.

The vocational curriculum at this level does not exceed three school years in length. A school year is composed of 36 weeks, and a week of 35 school hours. Each curriculum strives to secure correlation among general subjects, specialized subjects and extracurricular activities, to foster physical, mental, emotional and social growth. Generally speaking, the percentage distribution of school hours by the area for the vocational curriculum at this level is 50% for general subjects and 50% for specialized subjects.

Education at upper secondary school immediately follows that at the lower secondary school level. Its purpose is to give the students higher general and vocational education, based on the development of their minds and bodies by the education given at lower secondary school.

Vocational education at this level aims at preparing the students for entry into skilled occupations, jobs in which the worker uses

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[20] The material on curriculum comes from the Thai-U.S. Joint Task Force, *Preliminary Assessment of Education and Human Resources in Thailand* (Bangkok: USOM/Thailand, 1963), pp. 333-334 and 340-341. (Hereafter called *Joint Thai-U. S. Report*.)

TABLE 3

STUDENT OUTPUT FROM VOCATIONAL SCHOOLS--1958-1962

Education Level	1958	1959	1960	1961	1962
Intermediate Level					
(Grades 8-10)[a]					
Home Economics	2045	2256	2180	2244	1388
Trades & Industrial	2902	3291	3434	3039	2062
Agriculture	1068	789	694	604	561
Total	6015	6336	6308	5887	4011
Higher Level					
(Grades 11-13)					
Home Economics	572	921	1238	1353	2032
Business	1185	2101	2236	2355	1237
Trades & Industrial	2556	2489	4233	4274	3317
Agriculture	135	126	181	167	181
Total	4448	5637	7888	8149	6767

[a] Intermediate level renamed lower or junior level in 1963.

Source: Educational Planning Office, Ministry of Education.

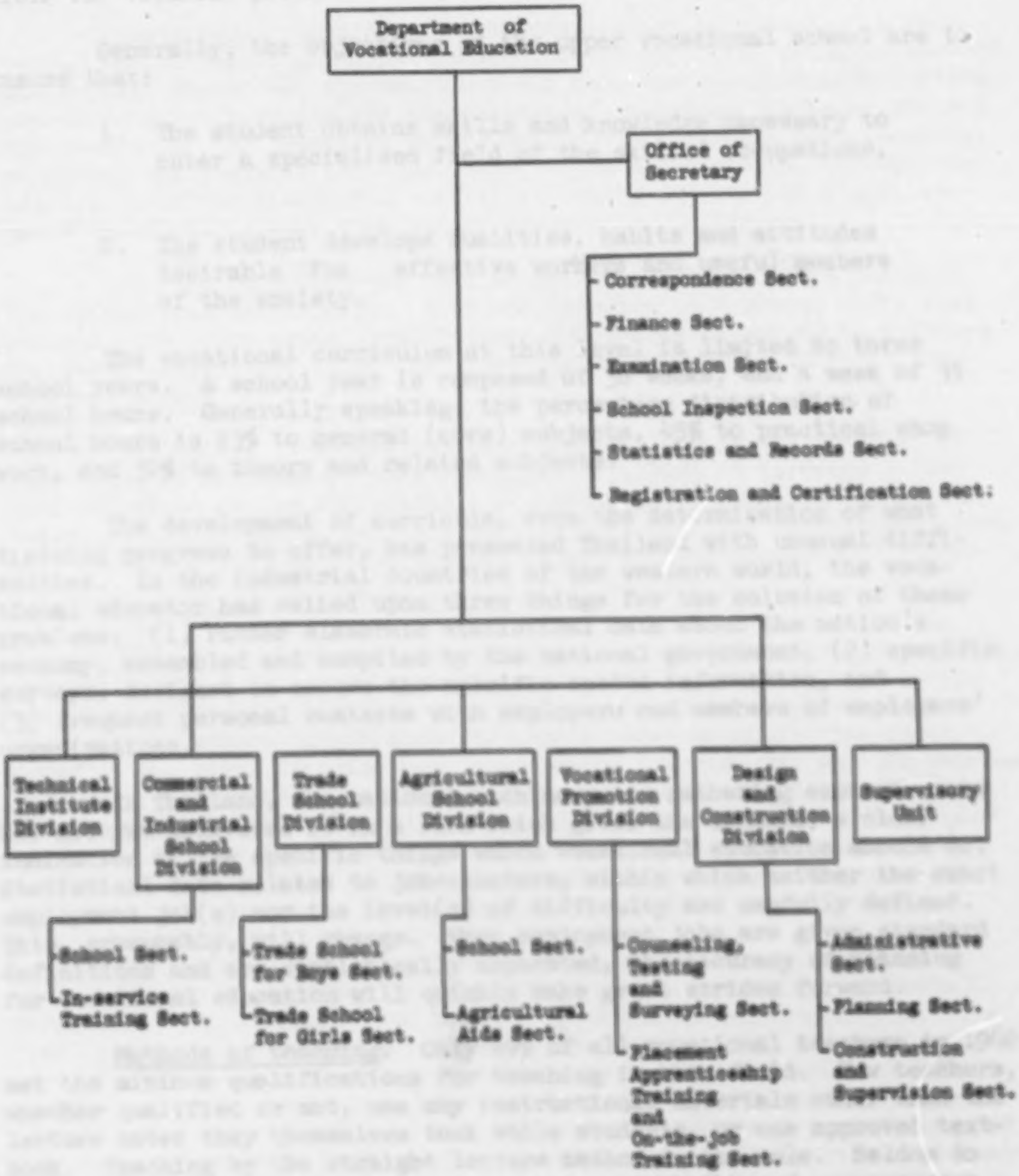
Department of Vocational Education
Office of Secretary
Correspondence Sect.
Finance Sect.
Examination Sect.
School Inspection Sect.
Statistics and Records Sect.
Registration and Certification Sect.
Technical Institute Division
Commercial and Industrial School Division
Trade School Division
Agricultural School Division
Vocational Promotion Division
Design and Construction Division
Supervisory Unit
School Sect.
In-service Training Sect.
Trade School for Boys Sect.
Trade School for Girls Sect.
School Sect.
Agricultural Aids Sect.
Counseling, Testing and Surveying Sect.
Placement Apprenticeship Training and On-the-job Training Sect.
Administrative Sect.
Planning Sect.
Construction and Supervision Sect.

Figure 5. Organization of the Department of Vocational Education. Source: Educational Planning Office, Ministry of Education.

independent judgment, has a high degree of hand skills, and is responsible for valuable products or equipment.

Generally, the objectives of the upper vocational school are to insure that:

1. The student obtains skills and knowledge necessary to enter a specialized field of the skilled occupations.

2. The student develops qualities, habits and attitudes desirable for effective workers and useful members of the society.

The vocational curriculum at this level is limited to three school years. A school year is composed of 36 weeks, and a week of 35 school hours. Generally speaking, the percentage distribution of school hours is 23% to general (core) subjects, 45% to practical shop work, and 32% to theory and related subjects.

The development of curricula, even the determination of what training programs to offer, has presented Thailand with unusual difficulties. In the industrial countries of the western world, the vocational educator has relied upon three things for the solution of these problems: (1) rather elaborate statistical data about the nation's economy, assembled and compiled by the national government, (2) specific surveys, designed to secure the specific needed information, and (3) frequent personal contacts with employers and members of employers' organizations.

In Thailand, the national machinery for gathering economic data has not yet delivered it in a form which gives the educator a clear indication of the specific things which vocational education should do. Statistical data relates to job-clusters, within which neither the exact employment job(s) nor the level(s) of difficulty are usefully defined. This, presumably, will change. When employment jobs are given standard definitions and are statistically separated, the accuracy of planning for vocational education will quickly make great strides forward.

Methods of teaching. Only 49% of all vocational teachers in 1962 met the minimum qualifications for teaching in this field. Few teachers, whether qualified or not, use any instructional materials other than the lecture notes they themselves took while students, or one approved textbook. Teaching by the straight lecture method is the rule. Seldom do teachers use instructional aids other than the chalkboard or encourage the students to participate in classroom activities.

Status of Educational Planning

Educational planning. The modern concept of planning is relatively new in Thai education. However, since the first establishment of the formal educational system, there has been the normal administrative procedure which involves the preparation of estimates and forecasts and the control of the execution of the Ministry's program. More recently, attention was given to the improvement of data collection, through the setting up of the Ministry's statistical unit, and regular annual reports on education have been issued since.

In 1959 an effort was made to introduce longer range planning for educational development. This was embodied in a scheme which took account of all the educational sectors and indicated the basic policies for future expansion. Thus far, planning was conducted in purely educational terms.

The latest influence has been the development, in a number of countries, of the concept that education is a form of investment, and that education can be successfully planned only in relation to national needs, economic, social and cultural; just as national development plans have to embody and take full account of educational planning.[21] These ideas were studied and discussed a great deal during 1963, and took shape in a number of reports, notably those of the UNESCO Investment Programming Mission and of the Joint Thai-USOM Task Force.

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[21] In the belief that the content of a nation's curriculum and the methods by which that curriculum is presented are the real keys to the use of education for national purposes, Hanna has developed a model of national investment in education to create human capital. The *input* phase of the model includes both the message (curriculum) and the sources from which this message is derived. These include the existing national culture context, the universal structures and processes of content disciplines, and the awareness of the potential condition of man. These sources then merge into national purposes and policies. Purposes and policies are restated in the message in the form of generalizations, values and attitudes, and abilities and skills.

The model's *throughput* phase describes the channels and processes by which the message is transmitted to the receivers (students). Here Hanna also discusses the factors which affect this reception. The final *output* phase of the model indicates that in order for the investment of national, group and individual resources in education to result in national gain, these resources should be directed to the development of citizens' understanding of and commitment to national purposes and of citizens' behavior in harmony with these purposes. These resources must also be geared to the manpower needs of the nation, thus avoiding imbalances in the nation's work force; see Paul R. Hanna, "Conventional and Unconventional Education for Newly Developing Countries," *America's Emerging Role in Overseas Education* (Syracuse, New York: Syracuse University, 1962).

One outcome was the creation, in November 1963, of an Educational Planning Office in the Ministry of Education.[22] This office has as its main function to set up an overall plan of education for the whole kingdom. It acts within the Ministry as an advisory and coordinating body, to gather the necessary data for policy making and to draw together the policies of all departments. As such, the office is placed directly under the Under-Secretary for Education. The office is also responsible for working cooperatively with the following main agencies outside the Ministry which play some part in the educational planning process.

Manpower Planning Office, National Economic Development Board. This organization's task is to keep fully informed on current and future national manpower needs in both the private and public sectors. Close coordination between the Educational Planning Office and this office is two-fold: (a) through the head of the NEDB Manpower Planning Office and the head of the Educational Planning Office; and (b) a key member of the NEDB office who participates in the pertinent studies related to the demand for and supply of trained manpower.

National Education Council. This organization, under the office of the Prime Minister, has a dual responsibility of (a) establishing educational goals and developing educational policies for implementing the goals at all levels of education, and (b) generally administering the five universities of Thailand. The Educational Planning Office is expected to keep in close touch with the policy-making element in the National Education Council, making its service available to the Council in order to provide sound, professional bases for establishment or modification of important policies. It is also expected to maintain a close liaison with the administrative element in the Council which is responsible for the overall direction of the universities.

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[22] Before the establishment of this office the only planning document, other than the rather general National Scheme of Education, was Government of Thailand, Ministry of Education, Six-Year Plan of Education (Bangkok: n.d.). This appears to be mainly a series of individual projects, geared largely to physical plant expansions and making slight impact on overall educational plans. This lack of planning did not go unnoticed by the general public. For example, a newspaper editorial on this subject appeared as follows in the Siam Rath on April 17, 1964: "It is not uncommon to find that our youngsters have graduated from schools in a half-baked manner. Lack of proper planning is definitely the chief culprit."

Ministry of National Development. This ministry studies manpower requirements and resources available for development projects, coordinates all manpower programs within the Ministry and evaluates manpower utilization.

Bureau of Labor. This organization has both operational (placement, inspection, training center, etc.) and informational (employment market information, etc.) activities that relate to the area of manpower planning.

Bureau of the Budget. In any planning, the support of the Bureau is essential since it has the power to approve or deny funds. The Educational Planning Office requires the continual advice of a Bureau representative on budget matters, and in turn should provide the information necessary to obtain the support of the Bureau.

Contacts of the Educational Planning Office also include representatives from the Civil Service Commission, Social Welfare, Public Health, Agriculture, Defense and other similar agencies.

In addition, pertinent research and statistical activities of the various universities and colleges, private institutions, companies and foundations, are utilized wherever possible. The National Research Council, in particular, is a most fertile source of cooperative activity.

Educational Planning Office. The organization of the Educational Planning Office itself provides for flexibility in planning (see Figure 6) and is designed to ensure that planning is conducted as an on-going process which can be changed according to time and conditions. Research and evaluation form part of the planning function and help to achieve the objective.

The creation of an Educational Planning Office was in line with national planning policy as expressed in the National Plan for Economic Development:

> It is desirable that each of the Ministries responsible for economic and social development projects should have its own planning office, comparable to the Technical and Planning Office of the Ministry of National Development, to screen and evaluate its own projects before submitting them for review and approval to the NEDB. The planning office should report directly to the highest authority in its organization to suggest and review steps which are being taken by its Ministry or Agency to implement its part of the Plan and the annual development budget. Each planning office should maintain the closest

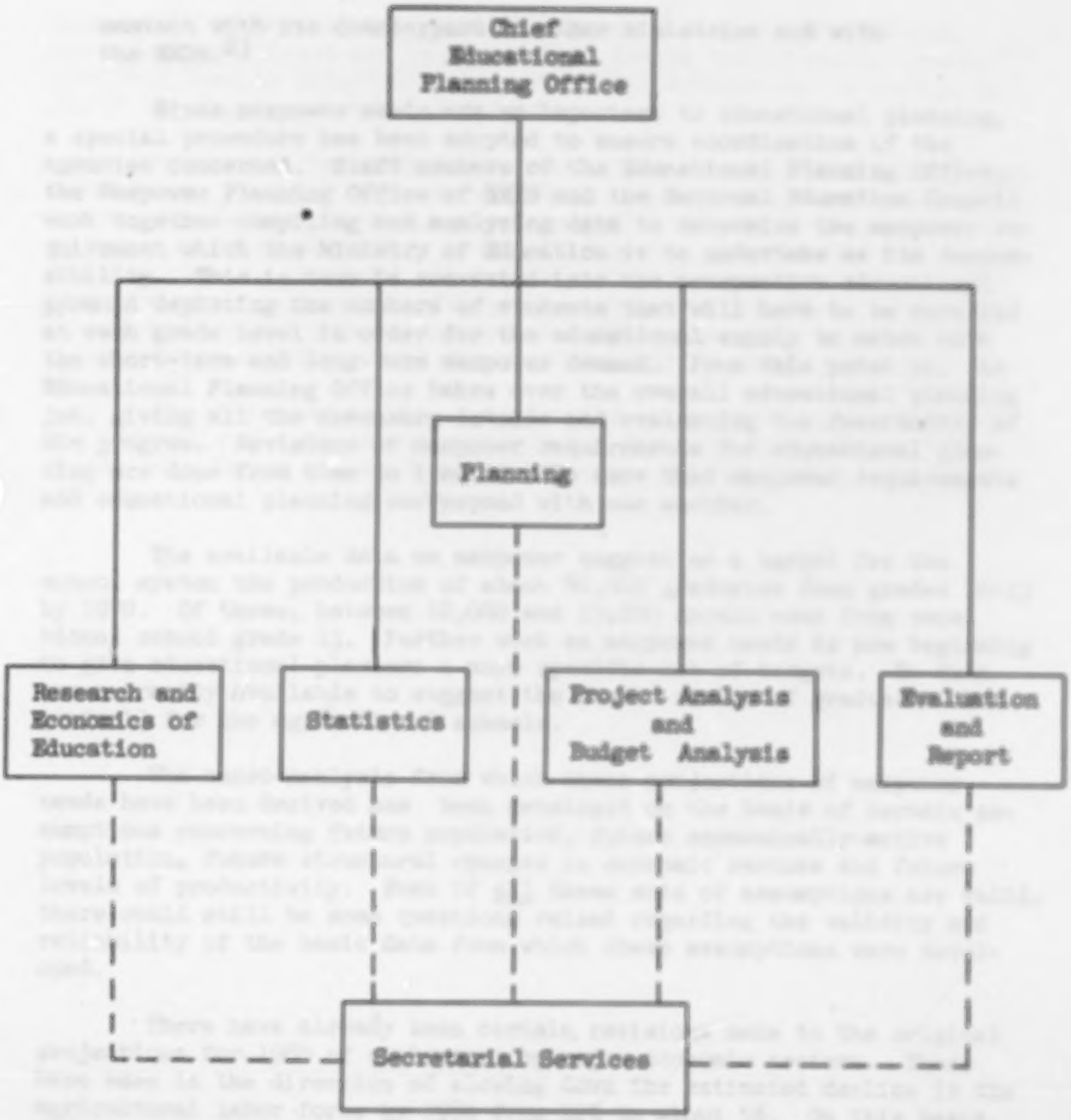
Chief Educational Planning Office
Planning
Research and Economics of Education
Statistics
Project Analysis and Budget Analysis
Evaluation and Report
Secretarial Services

Figure 6. Organization of the Educational Planning Office.
Source: Educational Planning Office, Ministry of Education.

contact with its counterpart in other ministries and with the NEDB.[23]

Since manpower needs are so important to educational planning, a special procedure has been adopted to ensure coordination of the agencies concerned. Staff members of the Educational Planning Office, the Manpower Planning Office of NEDB and the National Education Council work together compiling and analyzing data to determine the manpower requirement which the Ministry of Education is to undertake as its responsibility. This in turn is converted into the prospective educational pyramid depicting the numbers of students that will have to be enrolled at each grade level in order for the educational supply to match both the short-term and long-term manpower demand. From this point on, the Educational Planning Office takes over the overall educational planning job, giving all the necessary details and evaluating the feasibility of the program. Revisions of manpower requirements for educational planning are done from time to time to make sure that manpower requirements and educational planning correspond with one another.

The available data on manpower suggest as a target for the school system the production of about 60,000 graduates from grades 12-13 by 1970. Of these, between 12,000 and 15,000 should come from vocational school grade 13. Further work on manpower needs is now beginning to give educational planners a more specific set of targets. No data are currently available to suggest the needed number of graduates from grade 13 for the agricultural schools.

The macro-analysis from which these projections of manpower needs have been derived has been developed on the basis of certain assumptions concerning future population, future economically-active population, future structural changes in economic sectors and future levels of productivity. Even if *all* these sets of assumptions are valid, there could still be some questions raised regarding the validity and reliability of the basic data from which these assumptions were developed.

There have already been certain revisions made to the original projections for 1980 of employment by major economic sectors. These have been in the direction of slowing down the estimated decline in the agricultural labor force by 1980 from 12% to about 5%. On this basis, 78% of the labor force would still be in the agricultural sector.

The need to obtain more detailed manpower information in key occupations to supplement the macro-analysis has been recognized by the Thai Government. Plans are being made to carry out some micro-studies in economic sectors with a breakdown by occupation, numbers needed, tasks to be performed and required skill levels and education levels.[24] This will then be followed by a study of the educational situation to see if the supply matches the demand.

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[23] *Thai Dev. Plan*, *op. cit.*, p. 41.

The writer has selected an occupational area within the agricultural sector in which to do such a study. This area--farm service workers--is defined as those groups or individuals with educational backgrounds below university level who directly provide assistance to the Thai farmer. Included under this definition are agricultural extension officers, cooperative officers (credit, marketing and land), community development workers and private bodies that deal with farmers such as banks and commercial firms selling agricultural products.

The next chapter will describe the study of manpower demand for the occupational area described above and the following chapter will relate this demand to the source of supply--the vocational agriculture schools.

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[24] Some manpower information has already been gathered through censuses and surveys. These have, however, been quite limited in nature and have focused on industries and on urban areas.

THE DEMAND FOR GRADUATES OF THE AGRICULTURAL SCHOOLS

The Need for Farm Service Officials

The lack of new knowledge and skills of the Thai farmer and his need for technical assistance has already been sufficiently highlighted. However, it is of interest to consider whether the farmers, themselves, see a need for this assistance, since ultimately these services have meaning only as they have an impact on farming as practiced by the nation's farmers.

Prawat and Thongrauy surveyed 737 randomly selected members of Cooperative Land Improvement Societies in the Northeast (32% of all members) in order to find out the causes of success and failure in these Societies. Fifty-one% of the sample stated that they have technical know-how problems. Lack of sufficient water was the only problem considered more serious.[1]

A 1963 survey of 102 farmers in Ayudhya Province, conducted through the use of questionnaires administered verbally to the farmers at their homes, revealed that many farmers desire to raise crops and livestock in addition to those they currently raise. The two major reasons given for not doing so were insufficient water after the rice season and lack of knowledge.[2]

Sitton, in attempting to find out what is keeping farmers from using improved technology, reviewed data from unpublished results of research in progress at Kasetsart University in Bangkok. He found that when farmers are asked why they have not made changes in their operations, such as using fertilizers or adding new crops earlier than they did, they give answers which can be divided into four categories: (1) lack of knowledge, (2) lack of resources, (3) unwillingness or lack of desire to change, and (4) low price or lack of market. Sitton commented that the variety in the answers implies that a variety of solutions is needed to help within any given village or in different villages. At the same time, he called attention to the farmers' special need for more knowledge by citing a study which found variations in efficiency occurring in a small geographic area where the natural conditions such as soils, irrigation water, and weather were quite homogeneous and the crop under production was the same for all farms.[3] Sitton concluded that: "The variations that exist in efficiency of production and the widespread changes that are occurring on Thai farms strengthen the conclusion that much could be done, even within the limitations of resources now available, to increase productivity. It appears that sizable increases in output could be obtained on existing farms by making better use of resources now under the command of farmers. This is especially true if the managers of these farms are given the opportunity to utilize existing and forthcoming scientific knowledge."[4]

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[1] Prawat Chatikawanit and Thongrauy Changtes, "A Study of Cooperative Land Improvement Societies in the North Eastern Region of Thailand," The Role of Agricultural Economics in Economic Development, op. cit., p. 178.

[2] Boonlert Jugsurat, "Developing a Course of Study for Farmers in the Ayudhya Agricultural School Vicinity" (unpublished Master's thesis, University of Minnesota, 1963), p. 29.

While the research just reviewed shows that farmers do express a desire for more knowledge, it does not indicate whether or not the farmers would act upon advice they might receive. Unless an individual feels that his actions can make a difference, he is not likely to make the effort. This leads one to wonder to what extent the Thai perceives himself as having some degree of control over his world; that is, to what extent does he believe that his actions can effect a solution to his problems. Mosel believes that in Thailand, ". . . . cultural expectations about the manipulatability of men and nature, especially man, have been traditionally rather optimistic. The world of people and events is seen as essentially an open, on-going affair, offering reasonable promise that one's efforts to influence it will succeed--providing one is so moved."[5] This self-potency, as Mosel calls it, is found to be high both for economic and political problems. The crux of the problem is whether or not sufficient motivation is present to precipitate action. For example, Mosel found that, while rural people did not fit as highly as urban people on a self-potency scale, they were still more active than urbanites in political affairs. This he attributed to their motivation which, in this case, resulted from administrative pressures and/or social inducements which were not present in the urban setting.

One indication of the Thai farmers' motivation to act is their positive response to favorable market conditions. For this reason Sitton insists that the Thais are not subsistence farmers by choice: "There is a desire for change on the part of farmers in Thailand and they will respond to market stimuli. The increased production of such crops as corn, kenaf and cassava in recent years disproves the hypothesis that Thai farmers are bound by tradition, are satisfied, and will not change their production."[6] It would seem to follow, then, that the Thai farmers do have sufficient motivation to apply agricultural knowledge received from farm service officials.

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[3] Gordon R. Sitton, "The Role of the Farmer in the Economic Development of Thailand," The Role of Agricultural Economics in Economic Development, op. cit., p. 34.

[4] Ibid., p. 36.

[5] James N. Mosel, "Communication Patterns and Political Socialization in Transitional Thailand," Communications and Political Development, ed. Lucian W. Pye (Princeton: University Press, 1963), p. 222.

At the present time there is an approximate ratio of one Amphur (district) extension officer for every 7500 farm families or 42,000 persons. Without going into such aspects as qualifications of officers and number of actual contacts they have per year per farm family, it is apparent that there is a tremendous need for a great many more extension officers--more than can possibly be hired in the next few years. In addition to the extension services of the Departments of Rice and Agriculture in the Ministry of Agriculture, there are a number of other departments, both within the Ministry of Agriculture and in other ministries, which engage in some form of agricultural extension work. These departments are all expanding their activities and are all facing the problem of finding enough budget and supporting personnel and facilities to hire and train persons for their extension activities. Nevertheless, within these limitations new personnel are being hired by these departments. For the most part their extension services now draw upon, or else expect to draw upon, the senior agricultural schools (grades 11-13) as their major source of supply. Before studying this source of supply it will be worthwhile to outline the demand for graduates from these schools.

Survey of the Demand for Graduates

Shortly before this study was undertaken, a survey of the current demand for graduates of the senior agricultural schools and the qualifications these graduates would need on the job was made by the United States Operations Mission (USOM) and Ministry of Education officials.[7] The information gathered was obtained through personal interviews with Director level officers. Tables 4 and 5 summarize that survey's findings.

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[6] Sitton, op. cit., pp. 31-32. To back up this comment, Sitton states: "Area planted to maize increased from 347,000 rai in 1955 to 1,785,000 rai in 1960 permitting an increase in exports from 80,000 tons to 515,000 tons. Area planted to kenaf and jute increased from 63,000 rai in 1955 to 902,000 rai in 1960 permitting exports to increase from 3,000 to 62,000 tons and domestic use to increase to an estimated 10,000 tons."

[7] This could be considered as the first attempt to gather the information needed to match educational supply with manpower demand.

TABLE 4

ESTIMATE OF THAI GOVERNMENT DEMAND FOR SENIOR AGRICULTURAL SCHOOL GRADUATES FOR 1964

Department and Ministry	Numbers Needed
Ministry of Agriculture	
Agriculture Department	21
Rice Department	90
Livestock Department	10
Fisheries Department	10
Forestry Department	3
Irrigation Department	3
Ministry of National Development	
Department of Credit and Marketing Cooperatives	3
Department of Land Cooperatives	12
Department of Land Development	10
Ministry of Interior	
Community Development Department	200
Total	362

Source: USOM Education Division, "Report Summary on Training Requirements and Demand for Vocational Agriculture Graduates" (Bangkok, February, 1964). (Mimeographed)

TABLE 5

SUMMARY OF IMPORTANT QUALIFICATIONS NEEDED FOR WORK AS FARM SERVICE OFFICIALS

1. Understanding of economic and social conditions in rural areas, ability to work with farmers, honest enjoyment of rural life, willingness to dirty hands.

2. Knowledge, skills and experience in:

    a. Keeping farm records
    b. Using farm credit
    c. Analyzing soil and water conditions
    d. Laying out drainage and irrigation ditches
    e. Using fertilizers and insecticide
    f. Using hand equipment (sprayers and dusters)
    g. Adopting modern cultural practices
    h. Curing and storing grain for feed and seed
    i. Understanding the function and development of cooperatives
    j. Locating and utilizing pertinent reference materials
    k. Helping the farmer combine all the above in an economic fashion.

3. Ability to apply in practice and to demonstrate to others the knowledge and skills just listed.

4. Knowledge of departmental rules, regulations, procedures and activities.

Source: USOM Education Division, "Report Summary on Training Requirements and Demand for Vocational Agriculture Graduates" (Bangkok, February, 1964). (Mimeographed)

Although this survey provided necessary basic information, it was felt that more information was needed in order to develop a clearer picture of the demand for agricultural school graduates. Accordingly, this writer prepared a set of questions to be asked eight Director level officers and then conducted personal interviews with these officials to secure the answers to these questions.[8] An analysis of this survey follows.

Estimate of demand for agricultural school graduates. This topic was discussed to verify the findings of the USOM/Ministry of Education survey and to obtain an estimate of numbers needed in future years.

The departments indicated a need for somewhere between 375-390 persons in 1964 and between 385-400 for the next few years with the strong suggestion that this demand will increase as programs expand in the future. The largest stated need for graduates from the senior agricultural schools came from the Community Development Department in the Ministry of Interior. They listed a need for 200 persons. The next largest was the Rice Department in the Ministry of Agriculture which indicated a need for 80-90 persons per year.

Some of these departments have already changed the estimates they supplied in the USOM/Ministry of Education survey of numbers of graduates needed for 1964. This may be due to the knowledge of firmer budget commitments than were available at the time of the previous survey or to an interviewing of different officials.[9] It could also mean that these officials have not really thought out their needs and, even at this late date, have no fixed number in their minds of personnel to be hired this year.

No department really had firm estimates of future needs. In most cases they reported that for at least the next three years they would most likely hire the same number of graduates as in 1964 and after that time it will depend upon the rate at which their field activities expand. Many of these departments believe that their programs are on the verge of expansion and, if this should be the case, they would certainly want to make corresponding increases in their personnel. The Community Development Department stated in both surveys that they would like to hire two hundred graduates per year from the agricultural schools.[10] However, just before the writer left Thailand he was informed that the Budget Bureau had only approved positions for forty graduates from these schools. The Department hopes to raise this figure next year. As it turned out, less than forty applicants applied, so even if the Budget Bureau had approved more positions, it would not have made any difference in numbers hired. The Department of Land Development has indicated that they will only need about five new graduates per year in the future after hiring a considerably larger number this year. On the other hand, the Department of Land Cooperatives expects to increase their hiring of graduates after this year to fifty per year.

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[8] Some of the departments contacted in the USOM/Ministry of Education survey have been omitted from this survey while a private bank and a quasi-governmental organization have been added. These modifications were considered to reflect more accurately the demand situation. The persons interviewed were officials from the Departments of Rice and Agriculture in the Ministry of Agriculture; Departments of Land Development, Credit and Marketing Cooperatives, and Land Cooperatives in the Ministry of National Development; the Community Development Department in the Ministry of Interior; the Thai Tobacco Monopoly; and the Bangkok Bank. See Appendix B for sample of survey questions.

[9] Whether or not it would be more accurate to interview the top official in a department is difficult to determine. While he is the one who makes the ultimate decision, he may not have all the facts at his command until the time to make the decision arrives.

Traditionally the departments in the Ministry of Agriculture have had first call on the services of these graduates and for this reason other employing departments realize that they may have to hire persons from other sources if the supply is not enough to go around. Nevertheless, they go on record as preferring graduates from the agricultural schools.

Qualifications needed on the job. The findings of the USOM/Ministry of Education survey (Table 5) regarding the qualifications that the graduates from these agricultural schools will need on the job were the same as those of the present study, so they will not be repeated. Besides the technical and managerial knowledge and skills that one would expect as necessary qualifications for extension work, heavy stress was placed on the need to understand the farmer and farm life. Emphasis was also placed on the ability to assist the farmer by "doing" rather than by just "telling."[11] In the next chapter the present program in the agricultural schools will be discussed with a view toward determining to what extent the program is designed to turn out graduates with these qualifications. An inkling of what will be found can be gleaned from the next topic covered in this survey.

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[10] Formerly this Department only hired college graduates but this arrangement was not very satisfactory as there was a heavy turnover (about 50%) every year. Those graduates did not want to remain long in rural areas, preferring city life and believing that their future career depended upon their living in Bangkok.

[11] The determination of qualifications should eventually be refined to include science, mathematics and communication skills needed on the job. Employee rating scales could then be developed to see if the graduates from the agricultural schools are meeting these requirements. This information could then be fed back to the schools so that they could make the appropriate curriculum changes to account for gaps in the required training of the students. A study of this nature was conducted in Sweden

Suggestions for improvement of the school program. This topic was included to ascertain the opinions of the leaders of institutions that employ graduates from the agricultural schools as to the extent that these schools are turning out people who meet the qualifications covered under the previous item. The theme running through almost all the responses to this question was the plea for more practical activities in the school program. The need was expressed for students to get away from the present system of learning a mass of isolated facts by rote. It was hoped that students could begin grasping broader principles surrounding the major agricultural problems confronting Thailand and, equally important, be able to apply those principles to practical situations. In this connection it was remarked that many boys have learned from books about modern farming in other countries but do not even know how to hitch a plough to a buffalo and they learn little about how to work with and understand the Thai farmer.[12] It was recognized that to make suggested improvements in the school program would require an upgrading of the present teaching staffs in these schools who also need more practical knowledge about agriculture and the ability to demonstrate that knowledge.

Two of the employing groups stated that they knew very little about the program in the agricultural schools. They expressed an interest in learning more about the program.

In-Service training. Employing institutions were asked what provisions they now have for the in-service training of employees on the job. The assumption here is that the greater the amount of training offered by employing institutions, the less the school will be required to teach the specifics of particular jobs. Except for some pre-service induction training programs for new employees and occasional in-service lectures, there do not seem to be any organized and continuous programs of in-

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in 1960; see Torsten Husen and Urban Dahllof, Mathematics and Communication Skills in School and Society (Stockholm: The Industrial Council for Social and Economic Studies, 1960).

[12] Coleman states the problem as follows: "The need is for men who have been given a sound practical training; who not only know what to do, but do it themselves with their own hands; who are able to 'put across' what they have to teach and who are patient and understanding with village people." P. G. Coleman, "A Report on Agriculture in Ubol Province," Paper prepared for the Thai-Seato Regional Community Development Technical Assistance Center, Bangkok, 1963, p. 29. (Mimeographed)

service training. Induction training programs vary from three months to one year and emphasize methods of transmitting knowledge and an understanding of departmental organization and administration. This whole question of how to best blend formal school training, employee induction training and regular in-service training together into a meaningful whole is one that requires further study.

Duplication of services. All the departments covered in this survey carry on some type of extension activity. In some cases their activities may overlap or duplicate one another. This could mean that, if all extension activities were in the hands of only a few departments, fewer extension officers would be needed. Furthermore, the arrangement or rearrangement of these extension services and extension activities has a bearing on the curriculum emphasis in the agricultural schools. For these reasons employing institutions were asked whether they feel that their present and proposed future activities are duplicating similar farm service activities of other institutions.

For the most part they responded that there was no serious duplication of effort or overlapping of services. With all departments faced with shortages of extension personnel, dissipation of effort might be a more serious charge. The Ministry of Agriculture is now in the process of developing regional offices in the field the better to coordinate extension activities of its various departments. At the present time one department recruits and trains extension agents to work principally with rice, another recruits and trains its people to deal with rubber or with non-rice field and garden crops.[13] Few agents are recruited and trained to work with livestock. It should be possible to secure and train individual candidates for capable service in all of these fields, but this cannot be achieved so long as agricultural extension is organizationally dispersed. Perhaps the development of the proposed regional offices will serve to alleviate this problem.

Departments in other ministries, which are also engaged in extension activities that would seem to fall under the province of the Ministry of Agriculture, defend this seemingly deliberate fractionation of effort with the claim that they have taken over these activities by default, since the Ministry of Agriculture does not have the personnel or the budget to carry them out. While this may well be true, one wonders if the answer would not be to provide the Ministry of Agriculture with the necessary budget and personnel rather than to build up new little extension services elsewhere.

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[13] An extreme example of this overspecialization was the case of a Rice Department officer who told the writer that he did not assist farmers with the application of fertilizers to their rice fields because this was the task of officers from the Agriculture Department.

The Budget Bureau has stated that it is trying to use its influence to coordinate the extension programs of the Rice and Agriculture Departments in the Ministry of Agriculture, since they are the two major groups performing such activities. While they are aware that other departments, both inside and outside the Ministry of Agriculture, may perform certain extension activities, they point out that this is not the major function of these departments. The Budget Bureau feels that developing coordination and cooperation is a slow process and it hopes to start along this road cautiously by first concentrating on the Rice and Agriculture Departments.[14]

Finally, the question of the relationship of the community development worker to the various agricultural extension officers was raised. There is some concern that the community development worker may not take full advantage of the technical backstopping in agriculture available to him at the provincial level and may even give advice to farmers that runs contrary to Ministry of Agriculture policy.[15] Coleman claims that community development workers are not equipped or willing to help with agricultural extension activities, yet ". . . no greater contribution to the welfare and well-being of the villagers could be made by community development workers. . . ."[16]

These problems may not be as serious as the unresolved question as to whether these workers should be the sole direct contact with the farmers, supported by technical backstopping by agricultural officials, or whether the agricultural service should attempt to develop local extension officers who will also directly contact the farmers. When there are not enough trained officials to go around, this is an important question that will someday have to be faced.[17] This could cause some changes in the type of training given to the students in the agricultural schools.

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[14] Interviews with the Director of Analysis Service and the Director of Technical Service, Bureau of the Budget.

[15] For example, they have been suggesting to farmers that they grow a second crop of rice in areas where the Department of Agriculture is recommending crop diversification.

[16] Coleman, op. cit., p. 34.

[17] Platenius has recommended the creation of a unified extension service with field workers as generalists but backstopped by specialists at the provincial level. This requires training facilities to upgrade the knowledge and skills of the field workers and to keep them in close contact with research findings. He suggests that the best situation might be to use community development workers at the village level, agricultural officers (generalists) at the district level, and supervisors and specialists at the provincial level. He realizes that this will require close coordination between the Community Development Department

Preference for graduates with technical level education. In 1963 the Department of Vocational Education instituted a two-year technical education program which is designed to follow the three-year senior level program. The first batch of graduates will be available in February, 1965. Within two years this program will be operating in all four of the present senior agricultural schools. To determine whether or not there will be sufficient demand for this new level of labor supply, employing institutions were asked whether they would prefer to hire graduates from this technical level or to continue hiring senior level graduates.

The responses are split with four of the eight departments interviewed indicating that they would prefer to hire graduates with an additional two years of technical training provided that the Budget Bureau would allow them the additional funds necessary to pay them the higher salary they would command.[18] However, in terms of numbers, these departments are not the major hiring institutions for the majority of agricultural school graduates. Two institutions stated that they would not hire technical level graduates for field positions but might want them for the position of field supervisor.

Unless the increased supply of these technical level graduates will serve to create its own demand, there is a real possibility that, once all four agricultural schools are operating this program, there will be an oversupply of these graduates. Even more serious, there is a real question whether at the present time these schools are capable of developing even a mediocre program at this level. This point will be discussed further later.

Methods of advertising job openings. The purpose of asking employing institutions how they advertise their job openings was to find out whether institutions employing graduates from the agricultural schools are actively recruiting these graduates or merely leaving it to chance

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and departments in the Ministry of Agriculture and that community development workers will need more training in agriculture; see Hans Platenius, The North-East of Thailand--Its Problems and Potentialities (Bangkok: National Economic Development Board, 1963), pp. 106-113.

A recent questionnaire sent to forty-four Ministry of Agriculture extension officers in Thailand indicates a lack of coordination between government departments at the local level. Only 15% of these officers reported that they had met with community development officers more than five times in a one-year period; see Ministry of Agriculture, "A Study of the Role Concept of Agricultural and Rice Extension Officers in Thailand," Bangkok. (Unpublished results of research in progress.)

[18] Graduates from the senior agricultural schools start off as Fourth Grade Officers at a monthly salary of ฿600 ($30) while technical level graduates enter as Third Grade Officers at a monthly salary of ฿750 ($37.50).

that their personnel needs will be filled. Since there appears to be a greater demand than there is supply, a few energetic departments could conceivably corner the market of these graduates. Whether or not this is desirable is, of course, another question. It was found that almost all departments resort to radio and newspaper advertisements. Some of them also send notices to the provincial governors or post notices at their department. A few either send a notice to the agricultural schools or else send someone to talk to the headmasters. None of them reported a direct contact with the senior students themselves. When asked if they would like to go to the schools each year and explain their program to the students and possibly even invite interested students to go and observe these programs in action, all responded that they would very much like to do something of this sort. They wondered if the Department of Vocational Education could arrange some sort of a "career day" and permit them to talk to the students. Unfortunately the Department of Vocational Education and these employing departments each seem to be waiting for the other to make the first move in this direction. In the meantime, students at these schools have told the writer that they have only the vaguest notion of the type of work these departments engage in and are very anxious to learn more about their activities.

Survey of Commercial Firms Selling Agricultural Products

Even though there are many commercial firms selling agricultural products to farmers, it has generally been assumed that these firms hire only family members as employees and, therefore, no attempt has previously been made to analyze their manpower needs. In order to develop as complete a picture as possible of manpower demand for farm service workers, a survey of these firms was conducted: (1) to find out how many agricultural school graduates below university level are currently employed by these firms, (2) to find out how many will be employed in the immediate future, and (3) to obtain suggestions for improvements to the program in the schools from employers of past graduates.

Firms were selected by (1) turning to the classified section of the telephone directory and locating all firms listed as selling agricultural products, (2) including all these firms in the sample and, upon interviewing them, asking them if they know other firms not listed in the telephone directory and (3) adding all such firms to the sample.

The survey questionnaire was developed in draft by the writer and revised with the assistance of the Manpower Planning Office of the National Economic Development Board. At this point the Board translated these questions into Thai and provided staff members from the Manpower Planning Office to administer the questionnaire.

Results of the survey (see Appendix C for questionnaire) are summarized in Tables 6 and 7. Of the 51 firms surveyed, 44 hired only family members as employees and these had not attended agricultural schools. Seven firms reported having a total of twenty graduates from agricultural schools on their staffs. Six of the seven firms listed both total number of employees and number of agricultural school graduates who are employees. These averaged three graduates for every eleven employees. Putting it another way, roughly 26% of all employees of these six firms were graduates from agricultural schools.

Of the 20 persons listed as agricultural school graduates, 13 hold degrees from Kasetsart University and one holds a university degree from abroad. Two persons are reported to be graduates from Mae Joh Senior Agricultural School and four persons are listed simply as technical school graduates. This last category is not clear, since the newly established technical level in the agricultural schools has not yet turned out any graduates. At any rate, it appears that up until the present time there has not been much of a demand for agricultural school graduates and the little demand there has been has primarily been at the university level.

For the most part, the type of work these firms engage in consists of demonstrating and selling agricultural products to farmers. These salesmen are probably also called upon by the farmers to give advice on many other aspects of farming in addition to the specific advice they offer about the products they are selling. A firm background of agricultural education would appear to be an asset for persons engaged in this occupation.

A university graduate in Thailand is usually around 24 years old when he completes his education. With the exception of one firm, only one graduate was under 30 years of age.[19] Again with the exception of one firm, most of the graduates had not worked with these firms for more than three years. This means that many of the graduates did not go to work with these firms immediately upon completion of school. It is probable that they have been working during these intervening years, but whether they held positions with other private firms or whether they were in government service is not known. It would be interesting to find out where they previously worked and why they left their former positions. The fact that few graduates have worked with these firms longer than three years is also an indication that these firms have just begun to see a need for people with special training in agriculture.

Since the employees of these firms are not recent graduates and there is no information on their past work experience, it is difficult to

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[19] It is possible that one of the reasons why graduates of the senior agricultural schools have not been hired is that they are considered too young and immature for this type of work.

TABLE 6

EMPLOYMENT OF AGRICULTURAL SCHOOL GRADUATES BY PRIVATE FIRMS

Firm	Number of Employees	Agri. School Graduates No.	Agri. School Graduates School	Type of Work	Age	Years on Job	Monthly Salary (in Baht)	Suggestions for Agricultural Schools
A	12	1	Kasetsart	Insecticide Advisor	45	1/2	1,500	Teach trade and commerce
B	6	1	Kasetsart	Supervisor in the Northeast	30	3	4,165	Upgrade teaching staff
C	5	2	Kasetsart	(1) Assistant Manager for Agriculture	33	2½	--	--
				(2) Salesman	32	1	--	--
D	-	2	Kasetsart	(1) Chief Insecticide Division	30	3	1,500	--
				(2) Salesman	--	3	1,000	--
E	14	3	Two from Kasetsart One from Mae Joh	(1) Demonstrator	28	1	2,000	--
				(2) Demonstrator	31	1	2,000	--
				(3) Demonstrator	30	2	2,000	--
F	16	1 5 1	Overseas Degree Kasetsart Mae Joh	One assistant manager and six salesmen	26 to 28	1 to 8	2,350 to 4,900	Improve English Teaching
G	15	4	Technical School	Salesmen and Advisors	35 to 40	7 to 10	1,500 to 2,000	Graduates should have better knowledge of basic agriculture

TABLE 7

DEMAND FOR GRADUATES OF AGRICULTURAL SCHOOLS BY FIRMS SELLING AGRICULTURAL PRODUCTS, CLASSIFIED BY NUMBER OF EMPLOYEES IN AGRICULTURAL FIELD

Number of Employees	Number of Firms[a]	Number of Positions Available Now	Estimated Number of Positions Available in 1965-1970	Levels of Education Wanted Now and in 1965-1970
1-5	22	5	7	Technical/University
6-10	15	5	38	University
11-15	8	-	6-8	Technical
16-20	3	2	7	University
21-25	1	-	-	--
Total	49	12	58-60	--

[a] There were 51 firms in the survey but two firms did not list the number of their employees.

determine just how much more highly paid they are than persons in comparable positions and with similar backgrounds. In any event there is no question that they do receive higher salaries than do their counterparts in the Government. Therefore, even though the demand for graduates from the senior agricultural schools exceeds the supply, these commercial firms could probably attract the numbers required, if they chose to hire people from this level.

There was not much response to a question requesting suggestions for improvement in the agricultural school program. This could be because there are so few agricultural graduates hired by these firms that they can afford to be highly selective in their choice of persons to fill their openings and, as a result, are quite satisfied with their performance. Both the quality of teaching and direction of the curriculum were mentioned as needing some improvement or change by firms that did respond to this question.

Ten firms reported a total of 12 positions now open for graduates of the agricultural schools. Eleven firms reported a total of 58-60 positions expected to be available in the next few years. Five other firms also stated that they would have openings but were unable to estimate the numbers or the level of education they would require. If the total number of agricultural school graduates listed as needed during the next five years is divided by this number of years, it can be seen that the average number needed per year is about the same as the number of positions reported as available for this year. It would seem that these firms intend to proceed very cautiously in hiring trained manpower. This leads one to wonder whether they also intend to move equally cautiously in the expansion of their commercial activities.

Only three firms reported that they would hire technical level graduates and the total estimate of positions available for this level, both now and in 1965-1970, was 7-8 persons. No firm reported a need for graduates below the technical level. The demand is thus concentrated at the university level. No details were given as to the kinds of jobs available; in general, it is one of demonstrating and selling agricultural products to farmers.

Summary of the Demand for Graduates of the Agricultural Schools

A survey of institutions (other than commercial firms) which hire agricultural school graduates has revealed that the demand for graduates of the senior agricultural schools currently exceeds the supply and is expected to continue to do so in the near future. On the other hand, the supply of graduates from the newly established technical level may well exceed the demand. The agricultural schools need to concentrate on giving students more practical knowledge and the ability to make application of that knowledge. In addition to the technical knowledge one would expect agricultural school graduates to possess, they must also understand the socio-economic conditions prevailing in rural Thailand. Finally, this survey found a lack of coordination among institutions employing graduates from the agricultural schools with regard to personnel procurement, pre-service and in-service training of employees, and employee work activities.

The survey of commercial firms selling agricultural products has revealed that there is no demand by commercial firms for graduates of the senior agricultural schools and very little need for graduates from the newly-established technical level. Compared to the number of firms surveyed and the number of employees per firm, there is not even much of a demand for university trained persons. Whether the need actually does exist but these firms do not recognize it, is a question beyond the scope of this study. Since an over-supply of graduates from the senior agricultural schools is not expected, this lack of demand for graduates by commercial firms will not cause any manpower imbalances at this level. The findings from this survey indicate that at least for the next five to six years, Thai Government departments can proceed with their manpower planning for the occupational category of farm service workers without worrying about competition from this segment of the private sector.

In addition to these commercial firms selling agricultural products, there are other elements in the private sector that can be expected to expand activities and enlarge staffs as the pace of economic development increases. Included in this group that will have dealings with farmers, either directly or indirectly, are firms buying goods produced by farmers and manufacturers who process these goods. Processing industries expected to expand in Thailand would include handlooming; textile dyeing; cotton, jute, rice and sugar milling; tobacco manufacturing; and canning and other food processing industries.[20] Finally, transportation facilities for distribution of goods to regional markets throughout Thailand or for export shipments will also expand.

These new groups will need managers, salesmen and skilled workers. However, it will have to be determined whether graduates from the agricultural schools are the persons best suited and qualified for these various types of positions. It is very likely that those graduates who do enter into these new occupations will need to be given a somewhat different type of program than is presently offered in the agricultural schools. A close watch should be kept on developments in this area.

The tremendous shortage of all types of farm service workers in relation to the number of farm families in Thailand, the weaknesses in the pre-employment and in-service training of these groups, and the lack of coordination among them lead one to wonder whether extension activities can ever be developed adequately to perform the function of providing direct assistance to the masses of the rural population. Even Platenius' recommendation (see footnote 17) probably will not be feasible to implement, since it is unlikely that enough persons with rural backgrounds and adequate education can be recruited to serve as community development workers on a nationwide basis for some time to come.

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[20] USOM to Thailand, Private Industrial Investment Opportunities in Thailand (Bangkok, 1964).

On the other hand, the village elementary school is the one existing governmental institution which reaches either directly or indirectly into every home. It is a permanent institution and as such has the built-in virtue of continuity. This continuity allows for the development of a continuous program of evaluation. The village teacher is usually regarded as one of the leaders of the community and thus can play a major role in improving village life and relating education to national plans and purposes. Therefore, it would seem quite important to plan for the development of a village school program which emphasizes the agricultural principles and practices required for the agricultural development of Thailand.

The UNESCO Programming Mission to Thailand has concluded that, ". . . a primary education system is falsely based if it is geared to preparation for academic secondary schools rather than to knowledge and skills necessary for living in an expanding village society."[21] The Director-General of the Teacher Training and Elementary Education Departments in the Ministry of Education in Thailand have expressed to the writer their concern over the inadequacy of the present elementary curriculum.[22] They feel that rural development ultimately depends upon the schools; that the curriculum must include both basic communication skills and an understanding and appreciation of rural life and how it can be improved; and that reading, writing, arithmetic, health education, social education and practical arts must be regarded as tools to aid children in developing desirably in an agricultural environment.

Whether such a redirection of the curriculum can best be effected by adding special agricultural courses to the regular academically-oriented school program, by teaching the regular elementary school subjects but with proper regard for their agricultural relationships and uses, or by changing the whole program from a content-centered approach to a community development approach is an issue that each nation must resolve in terms of its traditions and values, its present state of educational development and its future goals. The important point is that the curriculum needs redirection. Rossin believes that, ". . . fostering a deep concern for the needs of rural areas can in itself, when the child leaves school, become a factor in raising agricultural productivity and consequently creating new employment opportunities in rural areas."[23] The farmer must be receptive to new ideas and must be sufficiently trained--both as an elementary school pupil and as an adult--to understand the technical advice he receives from farm service groups. The rural elementary schools can be used as an instrument to help develop this receptivity and understanding.

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[21] UNESCO, Educational Investment Programming Mission, Thailand (Paris, 1963), p. 49.

[22] Interviews with the Directors-General of the Elementary and Teacher Training Departments, Ministry of Education.

If the village schools in Thailand can redirect their programs along the lines just indicated, then the role of farm service workers can be more realistically defined in terms of providing technical backstopping support for the people who are most suited to be the first line of contact with the rural community--the rural elementary school teachers. In any event, regardless of the specific direction of activities that these farm service groups will take in the future, it is evident that they will have a continuing and vital role to play in the agricultural development of Thailand.

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[23] M. Rossin, "The Role of Vocational Agricultural Education in Agricultural Development," Working paper presented at the Working Conference for Directors of Vocational Agricultural Education in Europe and North America, quoted in UNESCO, Education and Agricultural Development, op. cit., p. 33.

THE SUPPLY OF GRADUATES FROM THE AGRICULTURAL SCHOOLS

The Agricultural Schools

The Division of Agricultural Schools in the Department of Vocational Education is responsible for the administration of the vocational agriculture schools. The Division supervises twenty-one agricultural schools located throughout the nation;[1] recommends the establishment of new schools and the means of improving existing schools; and procures and issues supplies, teaching materials, agricultural tools and farm equipment. Considering the importance that economic planners are placing on agricultural development, the percentage of the Ministry of Education total budget and the Department of Vocational Education budget spent on agricultural education seems low (see Table 8), especially in view of the fact that per pupil costs are quite high compared to the average for other vocational schools. Baht operating costs in 1962 were ฿54,502 per pupil compared to ฿1,761 for other schools and capital costs were ฿1,965 per pupil compared to ฿243.[2]

The seventeen regular schools under this Division are presently in a state of transition. Senior level agricultural schools (grades 11-13) admit students who have either completed work in a junior agricultural school (grades 8-10) or in an academic secondary school operating at the same level as the junior agricultural school. Although enrollment at this lower level is declining, demand for training at the senior level is increasing and more schools are offering this instruction this year.

Before compulsory education was extended to seven years, many agricultural schools were offering programs at the level of grades 5-7. These programs have now been phased out. At that time only Mae Joh Agricultural School in Chiengmai had a program at the senior level. Five schools now offer only this senior level training. Four others offered instruction at the first (and some at the second) grade of this level in 1963-1964. This year seven more schools are offering instruction at the first grade of this senior level.

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[1] See Appendix A for a map of Thailand showing school locations.

[2] See Joint Thai-U. S. Report, op. cit., p. 40. These high costs per pupil are primarily at the junior level (grades 8-10) where enrollments have fallen sharply in recent years. Once these schools are closed down, costs per pupil in the agricultural schools probably will not be as dramatically different from other types of vocational schools as they are now.

TABLE 8

AGRICULTURAL EDUCATION BUDGET COMPARED WITH MINISTRY OF EDUCATION AND VOCATIONAL EDUCATION BUDGETS, 1959-1964

(in millions of Baht)[a]

Year	Ministry of Education Budget	Vocational Education Budget	Agricultural Education Budget	Agricultural Education Budget as a Percentage of	
				(1)	(2)
1959	1,267.7	95.0	14.8	1.16	15.53
1960	1,236.3	90.0	11.1	0.90	12.35
1961[b]	1,026.2	69.8	9.2	0.90	13.19
1962	1,468.4	110.0	14.2	0.97	12.93
1963	1,624.1	121.6	16.7	1.03	13.71
1964	1,749.4	133.5	25.2	1.45[c]	18.88

[a] Baht 20 = U. S. $1.00.

[b] Only covers nine months.

[c] Percentage expected to be higher next year with the new emphasis on vocational education and the impetus from the impending World Bank loan.

Source: Computed from figures furnished by the Educational Planning Office and the Agricultural Schools Division, Ministry of Education.

The stated objective for instruction at the senior level has been to train individuals for farming and government positions in the field of agriculture as well as to prepare students for further agricultural studies.

The senior agricultural schools are currently providing the main source of supply under university level for farm service groups. To analyze the output or supply of graduates from these schools, the writer chooses to think of education as a process.-turning out a product. Therefore, first it is necessary to look at the raw material inputs or students, and particularly to notice their background training. Analogous to the goods-in-process stage of the production process is the type of training received by the students at the school. Factors to be taken into account at this stage include the curriculum and instructional materials, the staff, physical facilities, student activities, and coordination between the school and outside agencies. Finally, the finished product or graduate must be studied to see what quality has been turned out and whether the product is being used for the purposes for which intended.

The following discussion is meant to present a composite picture of all schools and is not intended to portray the situation in any one school. While no two schools are alike, there are nevertheless sufficient similarities in all major aspects of the school programs to justify the use of this method. Where differences exist, they will be noted. Certain portions of the narrative may appear somewhat general and insufficiently documented. The writer would defend these portions by pointing out that they were derived from a number of sources which independently arrived at essentially the same conclusions regarding the situation in the agricultural schools. These sources are:

(1) Visits by the writer to eight schools, one or more times, for periods ranging from one day to a few weeks. These schools represented all regions of the country; all levels of agricultural education; all sizes in terms of students, staff and facilities; and almost 60% of the total student enrollment in all agricultural schools;

(2) Discussions with eleven Peace Corps Volunteers who had each just completed two-year tours of duty at different agricultural schools;

(3) Discussions with Ministry of Education personnel;

(4) Discussions with USOM personnel;

(5) Review of USOM technician end-of-tour reports and USOM program documents; and

(6) Review of other papers and theses written by USOM and Ministry of Education personnel, including survey reports of five agricultural schools.

Students' Background and Entrance Requirements

Admission to the agricultural schools is based upon an entrance examination prepared and administered by each individual school. The students have definite preferences for certain schools and will apply directly to these schools first. If they do not obtain a high enough score on the entrance examination, they will then apply at what they consider to be the next most desirable school until they are admitted to one. The hierarchy of choices is fairly obvious. First choice goes to Mae Joh in Chiengmai since it has operated a program at the senior level for a longer period of time than any other school and has a good reputation throughout Thailand. Second choice goes to Nakornsrithamaraj in Southern Thailand. This school has better facilities than most others and, except for Mae Joh, has operated a program at the senior level longer than the other schools. Third choice goes to either Ayuthia or Surin. Both now have a complete program at the senior level. Surin trails slightly behind Ayuthia since it did not have the complete program until this year. Bangpra, the Agricultural Teacher Training School, should also be included here, since it has a demonstration school at the senior level in which many students want to enroll due to its proximity to Bangkok. Last choice goes to the remaining 12 agricultural schools which operate at the lower level but have begun to add senior level grades to their program. Table 9 showing the number of students applying and number admitted to grade 11 in the agricultural schools for the academic year 1964-1965, gives some indication of preferences of students.

Before 1959 Mae Joh was the only school accepting graduates from grade 10 of the academic schools. In 1959 Nakornsrithamaraj opened its program to graduates of grade 10 from the academic schools. Nakornsrithamaraj had previously received its students from the lower level agricultural schools. At this time academic students, who were not able to pass pre-university school entrance examinations (grades 11-12), immediately began to seek entrance into the agricultural schools as a means to further their education. This change in policy, plus the opening of senior level programs in other schools, has led to enlarged numbers of applicants and expanded enrollments. The following figures show the trend in enrollments following this policy change together with the numbers of students applying and admitted to grade 11.

	1960	1961	1962	1963	1964
Enrollment (grades 11-13)	610	813	1244	1830	2667
Applied, grade 11	261	446	504	N/A	2477
Admitted, grade 11	261	440	354	966	1360

TABLE 9

APPLICATIONS AND ADMISSIONS TO GRADE 11 SENIOR AGRICULTURAL SCHOOLS, 1964-1965

School	Number Applied	Number Admitted
Chiengmai	426	247
Nakornsrithamaraj	311	85
Ayuthia	2[illegible]6	100
Surin	86	76
Bangpra	210	54
Kalasin	99	62
Nan	110	90
Pathumtani	50	35
Burirum	78	66
Songkla	59	59
Chumporn	164	60
Trang	88	55
Chaiyapoom	160	105
Korat	48	36
Pitsanulok	173	85
Cholburi	63	40
Chantaburi	68	60
Srisaket	58	45
Total	2477	1360

Source: Agricultural Schools Division, Department of Vocational Education.

Without computing application/admission ratios, it is quite obvious that the demand for entrance into this senior level has mushroomed tremendously. One has to be careful in interpreting the figures in these tables. They may indicate that there are a larger number of students applying than before, a larger number accepted than before and that the ratio of applications to admissions indicates a much larger number being turned down and, therefore, a more stringent selection policy. Or, as a result of the practice of seeking admission at one school after another, these figures may simply show that some persons were turned down many times before being admitted to one of the seventeen schools offering first year instruction at the senior level.

Previous schooling, farm background, special interests and ability, and fūture goals of applicants are not considered relevant to the entrance procedure. Each school also has a quota of children of government officials who must be accepted, regardless of whether or not they pass the entrance examination. This is one reason why some schools admit a larger number of students each year than originally planned. They do not want to penalize other more capable students by counting the officials' children as part of the total quota of students to be enrolled. This is one of the causes of the overcrowded conditions in the schools, to be discussed later.

Survey of Seniors and Freshmen

In an effort to obtain some quantitative data on the students attending the senior agricultural schools, this writer developed a brief survey questionnaire[3] to be administered to the total population of 282 senior students in the three schools operating programs at this level during the 1963-1964 school year. Questions to be included were developed by the writer and reviewed for content by USOM agricultural education advisors and the agricultural education supervisors in the Agricultural Schools Division of the Ministry of Education. These supervisors translated the questions into Thai and they were reviewed by a Thai anthropologist both for content meaning and for accuracy of translation. The questionnaire was pre-tested at one agricultural school and revised on the basis of this pre-test information. The questionnaire was then taken to the schools and given to the students in their classrooms to be filled out under the guidance of this writer and the supervisors who had helped in its translation. Each question was explained and students were encouraged to ask questions if any of the items were not clear. Completed questionnaires were collected by the writer and the responses were tabulated jointly by the writer and the supervisors. Total senior enrollment for the three schools was 155 at Mae Joh, 50 at Nakornsrithamaraj and 77 at Ayuthia.

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[3] See Appendix D for sample questionnaire.

This questionnaire was administered at the outset of this study--the first week after the writer arrived in Thailand. At that time that was the only questionnaire that was expected to be given to students in the agricultural schools. Later on the writer found out that those seniors surveyed were the last group of students to go through the program before an important curriculum change in 1962.[4] It was also found out that since 1962 Ayuthia had opened its doors to graduates from grade 10 of the academic schools and that girls were being admitted to the program in these schools. For these reasons the same questionnaire was administered again to the three schools, but this time it was given to incoming freshmen. The only change in the questionnaire was that in the last question concerning expectations after graduation the students were given the option of checking "Do not know" in addition to the other choices available. This option was added with some reluctance, since it was feared that the students would tend to take the easy way out by checking this choice. Nevertheless, these students were incoming freshmen and it was assumed that many of them had not as yet given any serious thought about their activities after graduation three years hence. The basic question prompting this second questionnaire was, "Have the changes which began in 1962 caused a significant change in the composition of the student body?"

Total freshman enrollment for the three schools was 432 with 247 at Mae Joh, 85 at Nakornsrithamaraj and 100 at Ayuthia. Table 10 compares the answers of 1963-1964 senior students and 1964-1965 freshmen students by percent responding. An analysis of these responses follows.

Last school attended. The purpose of this question was to determine the extent to which the policy decision opening the agricultural schools to students from academic schools and the curriculum change in 1962 have affected the composition of the student body. Ayuthia was the only school of the three that did not immediately accept academic students under the change in policy and this is reflected in the responses to this question, since only 6% of the senior students from Mae Joh and 14% from Nakornsrithamaraj came from vocational schools while 94% of the senior students at Ayuthia did.

The survey of freshmen revealed that while all schools had lower percentages of freshmen with vocational backgrounds, the agricultural school at Ayuthia has undergone a tremendous transformation, dropping from 94% with vocational backgrounds in the senior class to only 20% in the freshman class. If this dramatic trend continues and extends to other agricultural schools that are in the process of establishing the upper level, students from the lower agricultural schools will have to compete with academic students for the limited number of places available

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[4] This change will be discussed in the section in this chapter on the curriculum.

TABLE 10

COMPARISON OF 1963-1964 SENIORS WITH 1964-1965 FRESHMEN IN VOCATIONAL AGRICULTURE SCHOOLS

(in percent responding)

	Mae Joh		Nakornsrithamaraj		Ayuthia		Totals	
Last School Attended	Srs.	Fr.	Srs.	Fr.	Srs.	Fr.	Srs.	Fr.
Vocational	6	3	16	7	94	20	32	8
Academic	94	97	84	93	6	78	68	92
No response	--	--	--	--	--	2	--	--
Major Influence for Attending								
Last School	--	1	3	1	3	1	1	2
Parent or Guardians	6	13	--	12	9	15	6	11
Friend	1	--	--	1	3	4	1	2
Myself	93	86	97	86	85	80	92	85
Came from Farm Background								
Yes	54	39	78	42	79	47	65	41
No	46	58	22	58	21	51	35	57
No Response	--	3	--	--	--	2	--	2
Expectations after Graduation								
Continue School	54	34	72	61	21	51	48	43
Farm	13	17	3	15	8	1	10	13
Gov't Job in Ag.	28	14	25	14	66	24	38	17
Other Gov't Job	4	2	--	5	4	3	3	2
Other	1	1	--	1	1	1	1	1
Do not know	--	32	--	4	--	20	--	24

in the senior agricultural schools and will find it increasingly more difficult to continue with their education. It may become necessary to make a special quota for them. Eventually these lower agricultural schools will terminate their programs and then this will cease to be a problem. The fact that the majority of students no longer have any lower level agricultural training is a factor that must be taken into consideration when planning the curriculum.

It would have been interesting to find out exactly how many of the students who had previously attended academic schools tried first to continue their academic education, and failing that, then switched over to the vocational program. However, the examination for entrance into the academic schools is given concurrently with the entrance examination for the vocational schools. Students, therefore, must make up their minds which school to apply for and then live with that decision. As far as the writer can gather, students switching over to the vocational stream do so either because they failed in their first year of the pre-university program (grade 11) and do not want to repeat the year over again (or else feel that they could not pass even if they did repeat it again) or because they did so poorly in their academic program in grade 10 that they believe they could not successfully continue with an academic program.

To digress for a moment, a word should be said here about incentives that could be provided to attract a better caliber student to the agricultural school program. While it is doubtful that the cream of Thai youth will ever prefer vocational education to academic education, the writer believes that there is a large segment of high quality students that could be attracted to the agricultural schools if adequate incentives were provided. One measure to be taken would be the provision of scholarships to these schools for boys with good grades in the lower schools but with insufficient funds to continue their education. Another financial measure would be to revise the present salary regulations of the Civil Service Commission so that graduates with this specialized and needed training could receive a higher starting salary and faster promotions than persons with a non-specialized education. This suggestion is not intended as a value judgment against a non-specialized, liberal education that is undoubtedly of value both to individuals and to society. However, in a country that is putting great emphasis on economic development, the wage structure should reflect that emphasis. If technical competence in the field of agriculture is considered a top priority need, then persons with that competence should be offered higher salaries than those in fields not considered to be as vital to national development. This also means that a person with a university degree would not automatically command a higher salary than someone with less education. It would depend on the fields in which they had prepared.

Another incentive would be for employing institutions to provide opportunities for advanced study for persons who have performed satisfactorily on the job for a stipulated period of time.

Finally, the prestige and status of the agricultural schools could be enhanced. National and provincial leaders, utilizing mass communication media, could influence students' choices of schools.

Provision of the incentives just described should serve to channel able students in the quantities needed into the senior agricultural schools.

Major influence for attending. This question was asked to find out whether the previous schools of the students, either academic or vocational, provided any counseling and guidance services and whether much parental influence was exerted over their children in choosing the type of school to attend. Responses of the seniors indicate that neither previous schools nor parents had any significant influences. There is a possibility here that the students, seeking to show their individuality and autonomy, downgraded the actual influence of their parents. Follow-up conversations with senior students at these schools, however, did not indicate that this was the case.

Although almost twice as many freshmen reported being influenced by parents or guardians in making their decision to apply to the agricultural school, the great majority (85%) claimed that the decision was their own. Only 2% reported being influenced by their former schools, so it can be concluded that no steps have been taken toward establishing a program of counseling and guidance in the agricultural schools during the last few years. Visits to the schools by the writer would substantiate this conclusion.

Number of students with farm backgrounds. Students coming from lower agricultural schools would not necessarily have farm backgrounds, since there is no entrance requirement of this sort. At the same time, while it is unlikely that students coming from lower academic schools would have originally come from small or remote villages, they could have grown up on a farm in or around the larger towns. This question was asked in order to find out just how many students and at which schools did have farm backgrounds. Almost 80% of the senior students at Nakornsrithamaraj and Ayuthia reported farm backgrounds, while at Mae Joh, the first choice of the best students, only 54% came from farms.

Fewer freshmen at all three schools reported coming from farm backgrounds. There was a 28% drop from the percentage of seniors at Mae Joh who had reported farm backgrounds to those with farm backgrounds in the present class of freshmen. At Nakornsrithamaraj the drop was 46% and at Ayuthia it was 41%. The total percent of freshmen coming from farm backgrounds for all three schools was 41%.

Expectations after graduation. This question was asked to determine whether there was any relationship between students' backgrounds and future goals and between the particular agricultural school attended and future goals. Since it was planned to administer a follow-up questionnaire to the senior students six months after they graduated from school, responses to this question from the seniors would also indicate how realistic their future goals were.

It might be expected that the senior students from Ayuthia, who came for the most part from lower vocational schools would have the lowest educational aspirations. This was the case. Only 21% expected to continue with school after graduation compared to 54% at Mae Joh and 72% at Nakornsrithamaraj. It was surprising that 13% of the senior students at Mae Joh, the school whose graduates supposedly have the easiest time obtaining government positions, reported they would like to go into farming. The writer believes that either these students come from wealthy parents who can provide them with large farm areas or else their goal is unrealistic. Perhaps they were trying to give the answer they thought would be most pleasing to the Ministry of Education. The great majority of the senior students who do not intend to continue with school expect to get government jobs in the field of agriculture.[5] Other government jobs or other fields of work were not considered. This may well be because the students have no occupational information to allow them to weigh job alternatives.

As was expected, a sizable number of freshmen students checked the "Do not know" item and this makes it difficult to compare the responses of these students with those of the seniors who did not have this item on their questionnaire. The supervisors in the Agricultural Schools Division believe that this response actually means that the students want to continue their education but they do not know if they will have the ability to do so. The difference between senior and freshmen responses at Ayuthia is most pronounced. Even with 20% responding that they do not know what they will do, 51% of the freshmen stated that they expected to continue their studies compared to only 21% of the seniors. This is another reflection of the changeover to a more academic student body at this school. A substantial number of freshmen students at these schools expect to return to farming upon graduation (13%). While the writer believes that less than this percentage will eventually return to farming, this amount is actually low for Asian countries.[6] Freshmen show no inclination to seek non-governmental or non-agricultural positions. In this respect they resemble the seniors.

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[5] Many of those continuing with their education also eventually expect to obtain government jobs in the field of agriculture; see discussion of graduate follow-up questionnaire on pages 89-99.

[6] A study of secondary agricultural school graduates in six Asian countries published by FAO showed a range from 12.8% engaged in farming in Thailand and 19% in Burma to 46.2% in Japan; see C. W. Chang, Present Status of Agricultural Education Development in Asia and the Far East (Rome: FAO, 1961), pp. 17-18.

Summary

The school with the largest number of senior students coming from lower vocational schools, Ayuthia, had the highest number of senior students with farm backgrounds and the lowest number expecting to continue with their education upon completion of grade 13. Schools which had opened their program to entrants from academic schools primarily received enrollments from this group. A lower percentage of this group came from farm backgrounds than did senior students from Ayuthia and a higher percentage expected to continue their education. Response to the question concerning influences in attending school indicated no organized programs of guidance in lower schools formerly attended by the senior students.

Changes in curriculum and in school entrance policy have led to corresponding changes in student composition in the senior agricultural schools. Most entering freshmen students now come from lower level academic schools and considerably fewer of them come from farm backgrounds. Given the combination of these two factors, one would assume that these schools would place very heavy emphasis in their curriculum on technical agricultural coursework and related practical farm experiences--if, as they state, their primary objective is to train individuals for farming and for government positions in the field of agriculture.

Girls in the Agricultural Schools

One other item that should be mentioned in regard to student composition is the recent acceptance of girls into the agricultural schools. These girls are taking exactly the same courses as the boys. When the writer asked a headmaster whether he thought it would be desirable for the girls to take some elective courses in the field of home economics, he responded that if they wanted to study home economics, they should attend a home economics school. The writer has asked some of these girls why they enrolled in the agricultural schools. At first they answered that they wanted to learn about agriculture because they expect to engage in farming. Upon further questioning they acknowledge that they really hoped to obtain office jobs with the Government. This prompted the writer to go to the three major employers of the graduates from these schools--the Rice and Agriculture Departments in the Ministry of Agriculture and the Community Development Department in the Ministry of Interior--to see if there is any demand for female graduates. The Departments in the Ministry of Agriculture responded that they will have no office jobs for these girls and would not consider hiring them for extension positions for at least another five years. The Community Development Department has hired girls in other fields before, but they told the writer that these girls have not worked out too satisfactorily. There are problems of safety and hardships and the Muslim South will not accept them. They, too, do not need any of these girls for office jobs.

Based on the above observations, there may be a legitimate question raised as to whether girls should be permitted to enroll in the agricultural schools at the present time, considering that (1) there is no current demand for them, (2) more boys apply than these schools have facilities to admit, and (3) the schools are not presently prepared to deviate from the regular agricultural curriculum in providing experiences for the girls such as home economics.

Teaching Staff and Teaching Methods

The agricultural schools are, for the most part, staffed with teachers and administrators with minimal training and qualifications. The following list, compiled by the Agricultural Schools Division, shows the level of education of all personnel under the Division during the year 1963-1964.

Certificate or Degree	Number of Persons
Ph.D.	1
M.S.	16
B.S. in Agriculture	42
B.S.	22
Higher Teacher Training in Agriculture	99
Lower Teacher Training in Agriculture	95
Other than Agriculture	
Secondary	44
Elementary	30
Other	82
Total	431

There were 207 persons, or 48% of the total, holding less than a secondary teaching certificate--the minimum certificate for qualification.[7]

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[7] At the senior agricultural level the staffs are somewhat better qualified with about 33% being under the minimum qualifications. However, they cannot begin to compare with the staffs in the Philippines and Taiwan where 80-90% hold a minimum of a Bachelor's degree; USOM Education Division, "Summary of Four Week Observation Tour to Taiwan and the Philippines" (Bangkok, November, 1963). (Mimeographed)

This certificate requires only two years of training beyond grade 13 and teachers holding this certificate will have had only two more years of education than their senior students. Furthermore, some of these teachers acquired this secondary teaching certificate by passing an equivalency examination. This is a paper and pencil test requiring only rote memorization of facts.

Looking at the education of the headmasters of the seventeen regular schools, we find that twelve of them hold an Elementary Teaching Certificate in Agriculture. This means that they completed the tenth grade and then attended an agricultural teacher training program for three years. Seven of these twelve headmasters also hold a general Secondary Teaching Certificate. This credential, equivalent to two years of college by United States standards, has in most cases been earned by these headmasters by passing a written equivalency examination rather than by attending school. Two headmasters hold a B.S. degree in Agriculture with no training in education, two hold an M.S. degree and one holds the Ph.D. with no training in education. In the case of the latter person, he has the responsibility for the agricultural teacher training program as well as for the regular agricultural school located on the campus of the teacher training school and used as a laboratory school.

To the knowledge of the writer, none of these headmasters has had any training in school administration. While they are quite astute in matters of Thai Government administration--building construction procedures, record keeping, report writing, handling of finances and personnel, and so on--with few exceptions they seem to lack a real understanding of the educational purposes and needs of their institutions. The organization of the school program and of their teaching staffs usually reflect this lack of understanding.[8]

There is a serious problem of in-breeding, since the present agricultural teachers were students, themselves, in these schools before entering the agricultural teacher training program. This means that they were non-academic students in a weak program with weak teachers, that they then went to an inadequate teacher training program and that they finally returned to teach in these agricultural schools. This problem should diminish as the program and faculty of the Agricultural Teacher Training School improve, as more Bachelor's degree teachers are hired to teach in the agricultural schools, and as the agricultural schools themselves tighten up their programs.

At the present time there is no formal program of in-service training for teachers. If teachers can get permission to return to school and want to do so, they may improve themselves on their own. There are occasional in-service training conferences conducted by the supervisors in the Division of Agricultural Schools. These supervisors also visit the schools from time to time. However, the supervisory unit is greatly understaffed and is given little financial or administrative support. Another obstacle facing the supervisors is lack of coordination. Each department operating schools in the Ministry of Education has its own supervisory unit with specialists in content areas. There is a need for coordination between these units, since they are all understaffed, both quantitatively and in terms of well-qualified people. Working together, they could supplement and complement each other's activities.

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[8] In the Department of Vocational Education itself, the top men responsible for the administration of the agricultural schools do not come from a rural or agricultural background. Neither have they had training as vocational educators.

For example, the strongest group in the field of agriculture are the supervisors in the Agricultural Schools Division in the Department of Vocational Education. The Teacher Training Department has only one agricultural supervisor, the Elementary Department has two and the Secondary Department has two. Each group is expected to conduct its own in-service training programs and school visitations and to develop its own instructional materials. On the other hand, the Vocational Department has only one science supervisor for all its schools while other departments have a number of such supervisors. If personnel and budgets were combined and these units merged together, all schools at all levels would benefit.

In order to merge these units they would have to be taken out of the control of the individual departments and placed in the Under-Secretary's Office The Budget Bureau and the Civil Service Commission have informed the writer that they would not be stumbling blocks to such a move; that is to say, that amounts of budget and personnel policies would continue to be determined by function rather than by organizational structure. The Directors-General are opposed to the idea of merging the units. They feel that coordination can be achieved on an informal basis without taking such a drastic step. To date this has not been the case and some Ministry officials believe that coordination cannot work until such a merger takes place.

Besides the problem of coordination these units also face the problem of being required to devote a large portion of their time to non-professional, non-supervisory, administrative tasks such as grading examination papers by the thousands. Whether these units merge or not, they need direction. This requires a determination on the part of the leaders in the Ministry of Education to organize and utilize these supervisors in a way that will permit them to make a maximum contribution to educational development and, indirectly, to economic development.

Returning to the agricultural schools, there is a definite need at the senior level for staff members with B.S. degrees and training in animal husbandry, fishery, agricultural engineering, agricultural economics, crop production, soil management, entomology and plant pathology. As these persons are added to the staffs of these schools, evidence of growing pains will become more obvious. There is already a discernible conflict between the younger, better educated teachers and the older ones. The younger ones are pushing for rapid changes in both content and methods of teaching. The older ones, including the headmasters, often feel that the young teachers lack respect and are trying to disrupt established and valued patterns.

Usually there are no specially trained non-teaching staff members to fill such positions as librarian, nurse, counselor or dormitory and food service supervisor. Teachers are assigned responsibility for these positions in addition to their regular teaching assignments. Some of the weaker staff members may be assigned to these tasks full time, primarily in order to remove them from classroom teaching. A doctor comes to the school once a year to give the students a cursory physical examination which does not include x-rays. No medical histories are kept on students.

Teaching loads in these schools vary from 2 to 22 hours per week. The average teacher load is 10 hours per week. Supposedly, those teaching in class less than 22 hours supervise student field projects, but the extent to which this rule is actually followed is open to question. The pupil/teacher ratio of 1:7, compared to the 1:12 average ratio for other vocational schools, seems low but it is also misleading.[9] Counted in the category of teachers are (1) unqualified persons waiting for reassignment to lower level schools, (2) persons away studying but continued on the school payroll, (3) persons who are not well qualified and may only teach one or two subjects, and (4) persons who have other responsibilities and may only teach one or two subjects. If only those full time teachers who meet minimum teaching qualifications are counted, the schools are really understaffed.

Course assignments are determined jointly by all the teachers at the beginning of each school year and are based as much upon personal preference as on professional competence. Most teachers do not have a major in any specialized area but they do acquire experience in the process of teaching courses. Yet it is very likely that they will teach altogether different courses in the following year. Sometimes course assignments are not determined until a few days before classes are due to begin and one teacher may have to teach three or four different subject areas on this short notice.[10] To complicate matters, the teachers have no textbooks or library books at their disposal to aid them in developing their lessons. This is not as serious as it might seem, though, because the teachers generally teach by the straight lecture method and use the lecture notes that they compiled when they were students at college. Only the better teachers will gear this lecture material to the level of the secondary school students.

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[9] These ratios are for 1962; see Joint Thai-U. S. Report, loc. cit.

[10] This has led one teacher to remark wryly that the Thais must be the most expert teachers in the whole world in order to be able to accomplish such a feat.

Recently the Ministry of Education has been supplying curriculum outlines and course syllabi to the agricultural schools, but they only outline the broad topics to be taught and the teachers must develop the details within these topics. This is rather difficult for a non-specialized teacher to do, especially without any instructional materials. Generally, teachers do not make lesson plans, use job sheets, or spend time on demonstrations, laboratory exercises, field trips or problem solving activities. There is little or no application of classroom teaching to actual supervised field experiences. The staff has no written objectives for their classes in terms of imparting knowledge and skills and developing favorable attitudes. Enabling the students to pass the final course examination is the only stated objective for most courses.

Under present methods of teaching the teacher is the machine that transmits and the students are the passive receptacles that receive. Students are generally very bored and disinterested. Most of the time, when they are not taking notes, they just stare out the window and daydream. They do no daily preparation of assignments. They know that they can pass the course by cramming for the final examination right before the end of the term.

These students need to acquire the ability to think, to apply knowledge, to learn how to arrive at sound decisions and to develop skills rather than learning how to memorize isolated facts by rote to be regurgitated at examination time. More facts can be reviewed in an encyclopedia than can be learned by rote. Furthermore, these facts change. Emphasis should be on adaptability, diversity of specialization and practical work. The need for "learning to learn" rather than learning sets of applied formulae, should be paramount. However, it is not realistic, or even proper, to expect teachers to alter their methods of teaching until the examination system changes. As matter now stand, teachers are teaching the way they must, if most of their students are to be able to pass their examinations.[11]

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[11] This, of course, is not to say that all teachers could teach otherwise. A radical change in examination content would require a rather intensive program of in-service teacher training to keep the total system in balance.

The Examination System and Its Relationship to the Curriculum

The first two years of the higher agricultural schools (grades 11 and 12) correspond in years to the last two years of the academic secondary schools. In the latter schools, students completing grade 12 take a final examination which emanates from the Department of Secondary Education in the Ministry of Education. If they pass this examination, they may graduate from their school and then apply for university entrance examinations.

Until last year the Agricultural Schools Division followed its own examination system. End-of-year examinations for students completing grade 11 or grade 12 were constructed and graded by each individual school, while the examination for grade 13 seniors was the responsibility of the Agricultural Schools Division. Last year this policy was changed. The Division now sends to grade 12 students a two-part final examination. This is filled out and returned to the Ministry of Education for grading.

The part that concerns itself with technical agriculture is graded by the Agricultural Schools Division. The second part tests knowledge of academic subjects. This part, identical to the examination given to grade 12 seniors in the academic secondary schools, is graded by the Department of Secondary Education. Agricultural students who pass this portion of their examination are then qualified to sit for university entrance examinations. If they pass these entrance examinations, they may leave the vocational stream and continue on their academic way, the same as graduates of the academic secondary schools.

If the agricultural students either fail the academic portion of their final examination or fail the university entrance examinations, they may return to the vocational stream and continue their education in grade 13--the senior year of the higher agricultural schools. That is, they may continue their education if they score sufficiently high on both the academic and vocational portions of the final examination.[12]

This change in examination policy was a logical next step following the 1962 change in curriculum in the higher agricultural schools. The weekly schedule of courses at this level may be seen in Table 11. The academic courses now offered in grades 11 and 12 are the same as the minimum core requirements offered in the general stream of the academic secondary schools at these grade levels. Therefore, in theory at least, students completing grade 12 are capable of passing the school leaving examination for grade 12 academic students.

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[12] Supposedly, the schools also count their work during the school year as part of their grade. However, the writer does not know of any case where a boy failed his final examination and still passed the course.

TABLE 11

SCHEDULE OF SENIOR LEVEL AGRICULTURE COURSES BY GRADE AND HOURS PER WEEK

Subjects	Grade 11 Hours	Grade 12 Hours	Grade 13 Hours
Group A. General Education			
1. Thai	3	3	-
2. English	4	4	-
3. Social studies	3	3	-
4. Mathematics	2	2	-
Group B. Vocational Practice			
1. Agronomy and animal husbandry[a]	6	6	15
2. Soil science	1	1	-
3. Agricultural economics	1	2	2
4. Farm mechanics-carpentry	3	3	3
5. Experimentation and extension	-	-	2
6. Animal and plant breeding and improvement	-	-	2
7. Farm practice	5	5	5
Group C. Related Subjects			
1. Science	6	4	2
2. Agriculture mathematics	1	2	-
3. English	-	-	2
4. Food preservation	-	-	1
5. Conservation and Natural Resources	-	-	1
Total Hours per Week	35	35	35

[a] Agronomy and animal husbandry course includes sub-courses in horticulture, rice crops, plant protection, small animal raising, feeds and animal sanitation. Electives offered in Grade 13, include ornamental plants, field crops, horticultural crops, forest crops, large animals, fishery, sericulture, and honey and lac. Availability of elective courses depends on location of the school. None of these courses involve field work.

The reasons behind this change over seem quite logical at first glance. The Department of Vocational Education desires to build up the prestige and reputation of the vocational schools and also to give vocational students a chance to continue with their education. What better way to accomplish this than to switch to a heavy academic emphasis in the curriculum and as a result, open the university entrance examinations to the students!

Before going any further with this present policy, however, the Department of Vocational Education should ask itself two questions:

1. Has this change in direction accomplished its purpose; namely, opening up the doors of the universities to vocational school students?
2. What effect is this change in direction having on the total school program and what is its relationship to the objective of agricultural education?

There is already some evidence that the first question must be answered in the negative. As soon as students failing in the academic schools found out about the change in the agricultural school curriculum and the option of taking the academic school leaving examination now available to grade 12 students in these schools, they began to apply for admission in large numbers in the hopes of using these schools as a means of getting into the "back door" of the universities.[13] The figures on enrollment increases since 1962 and numbers admitted compared with numbers applied for 1964, already discussed on pages 59 to 61, and the change in students' backgrounds noted in the questionnaire administered to incoming freshmen, discussed on pages 62 to 67, testify to the quantitative and qualitative composition changes in the student body.

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[13] The following very pertinent editorial was printed in the Sarn Seri newspaper on September 24, 1964. "Reports of the World Bank Conference--Among the projects the Finance Minister has already sounded the World Bank about for the raising of loans to implement them [sic], that of special interest is the project to develop vocational education. It is of interest because it is a new project, very different from those to construct dams. It is a fact that vocational education does not seem to be able to impart knowledge and efficiency making students feel confidence in themselves. This might be because curricula are not suitable and the method of teaching is not able to obtain desired results. That is why higher vocational schools have now become places to provide a higher level of education for children when they graduate from secondary school and are not able to enter any other school or college. Should a loan be obtained from the World Bank for development of vocational schools, it will be necessary to reorganize them completely, as well as to revise their curricula and use better and more practical methods of teaching. Should there be any subjects which are not really necessary and which students would not be able to finish within the short period for their studies, it would be better to drop them completely. Establishing higher vocational schools merely in order to provide children with a school in which to study after they graduate from secondary school is not at all proper. It is of no use to national education and students and it is also a waste of State funds because results justifying expenditure incurred are not obtained."

With the large number of unqualified or barely qualified teachers, the weak background of these "academic" students and the present strain on staff and facilities due to the rapid increase in enrollments, it is not likely that a large percentage of students will be able to pass the academic portion of the grade 12 final examination. That this is the case may be seen in Table 12.[14]

TABLE 12

RESULTS OF GRADE 12 FINAL EXAMINATION
IN VOCATIONAL AGRICULTURE SCHOOLS
BY SCHOOL IN 1964

	Numbers of Students		
School	Taking Examination	Passing Examination	Percent Passing
Surin	99	23	23
Mae Joh	176	32	13
Nakornsrithamaraj	94	33	35
Ayuthia	121	22	18
Bangpra	73	39	53

Source: Agricultural Schools Division, Ministry of Education

Only one school had more than 50% of its students passing the examination. The others ranged from a low of 13% passing to a high of 35%. All of the students passing this examination are now continuing their education in grade 13 of the agricultural schools. None entered the universities. It can be assumed that most, if not all, of them tried to enter but could not pass the entrance examinations.

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[14] Perhaps the most surprising statistic in this table is the low percentage of students from Mae Joh passing the examination. This school supposedly attracts the best applicants to the agricultural schools, has a proportionately better educated staff, and has better facilities and equipment than the other schools.

Thus it can be stated that at the present time the curriculum change has not accomplished its purpose. On the contrary it has served to throw the whole program out of balance. Some illustrations of this imbalance will serve to illuminate the magnitude of the problem.

In previous years, when the schools made and graded their own final examination for grade 12, the vocational and academic portions of the examination were graded separately and the students had to make a certain minimum score on each portion in order to pass. If this same grading system had been followed in the 1963-1964 academic year, almost 75% of the students would have failed. This is because that large a percentage of students did not pass the academic portion of the examination which, as mentioned previously, was handled by the Department of Secondary Education. To avoid this calamity, the Department of Vocational Education decided to average together the scores from the two portions of the examination and considered an average of 50% correct as the minimum passing score. This brought the number failing down from 75% to 25%, since the vocational portion of the examination was not too difficult.

The poor results on the academic examination has caused the schools to place even further emphasis on their academic classes in the hope that a better showing will be made next year. This has led in part to the following.[15]

1. Botany, physics and chemistry are taught as separate disciplines and are not related to practical problems in agriculture. Science teachers seldom conduct laboratory experiments and the students, themselves, have no opportunity to conduct their own experiments. Since the science examination is based on the lectures and requires no experiments, the teachers are quite right in not "wasting" students' time with laboratory experiences.

2. A disproportionate emphasis is placed on the teaching of English, because English is a very important segment of the grade 12 examination.[16] The best trained and most experienced teacher in the field of technical agriculture in one school, and the only one holding a Master's degree (which happens to be in technical agriculture), is teaching English full time. This is because he did his graduate training in the United States and speaks English better than the regular English teachers. A number of other cases have been called to

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[15] These situations already existed but are being magnified now.

[16] All subjects are not given equal weight.

the attention of the writer of persons with overseas advanced technical training being required to teach English.

This stress on English teaching hit closer to home when the writer and his family went to live at one of the agricultural schools for a few weeks. The writer's wife, who has special training in the field of science, offered to help the science teachers reorganize and improve their pitifully weak science laboratory facility. The headmaster thanked her for her offer but asked instead that she spend her time talking to English classes.

3. Girls are being admitted to the program when there is no apparent manpower demand for their services. At the same time, boys, scoring lower than these girls on entrance examinations, are being turned away. Is this further evidence that the real objective of these schools is to prepare students who cannot get into the academic schools for college entrance examinations?

4. Formerly academic courses and courses in technical agriculture were spread evenly throughout grades 11-13. Now the latter are held down to a minimum in grades 11 and 12 so that there will be enough time for the academic courses. Thin in grade 13 there is so much classwork in technical agriculture that must be covered that there is little time left to engage in practical activities related to this coursework. There is also little time for field trips to agricultural experiment stations or other places engaged in pertinent agricultural activities. There is certainly no time available for finding out the problems of agriculture in Thailand first hand by living and working with farmers.

5. The last point leads directly into a look at the role of the school farm in the school program. Back in the days when agricultural schools were developed for the purpose of training teachers of agriculture for the primary schools of Thailand, school farms were established to provide practical training for these prospective teachers. When these schools were later converted into regular vocational agriculture secondary schools, it was assumed that these school farms would continue to enable the students to put their classroom theory into practice--to learn by doing.

Today the school farms are viewed as sources of income for school operation. Little emphasis is placed on using the farm as a teaching tool, for experimentation, or as a source of improving the diet of the students. Student work experience, except for a few projects, has been chiefly repetitious labor assignments. Determination of the best use of the land, based on such factors as soil type and production possibilities, has not received much consideration.

Farm operations have not differed greatly from those of the average Thai farmer and have not served as a demonstration to the community of improved farming methods. For example, only one crop is grown where double cropping is feasible. Quantity has been emphasized over quality and improvement of management practices; e.g., money is spent to purchase additional livestock rather than to buy good feed or to put in permanent type roofs, to pour concrete floors and feeding platforms, to better arrange swine pens, or to provide feed storage and mixing facilities. Livestock is often fed refuse from the kitchen and corn and small grain crops are seldom grown for livestock feeding. With profit the major motive, crop diversification is not practiced on a wide scale even though it would better serve educational purposes.

In theory all students at some time in their school program now have supervised projects in vegetables, crops and animals. However, since they must furnish all seed, feed, fertilizer, animals and other inputs and since there is no form of student cooperative to help them with this financial burden, few of them can afford to do more than raise a few chickens or grow a few vegetables. In effect, these do not differ from similar projects now being conducted by children in grades five to seven in the elementary schools. Even at that, students could benefit from this activity if they carried out their projects under the best techniques of farm management and production and planned this themselves; i.e., keeping financial and production records, making a budget, studying soil characteristics and applying fertilizer, utilizing insecticide and marketing produce. However, student initiative of this sort is not encouraged. Teachers generally do all of the planning for the students and just tell the students what vegetables to grow and what plot to grow them on. Student selling cooperatives have not been encouraged. Students are often required to sell their vegetables to the school kitchen at lower-than-market prices. Student projects are terminated before the vacation period begins. Livestock must be sold and crops go unattended. This is one more piece of evidence of the artificial nature of student activities.

Each teacher is responsible for supervising a certain number of students' projects. This is determined by dividing the number of students by the number of teachers and has nothing to do with the subject area competence of the teacher. Actually, this does not make too much difference, for most of the teachers have had no practical farm experiences themselves. Students usually put in around five hours a week on these projects.[17] This is in addition to the required five to ten hours a week they must spend on helping with the school farm. This latter category, known as "farm practice" consists of cutting grass, digging wells, building roads, putting up fences, cleaning pig pens, etc. When it comes to actual livestock and crop production--handling and feeding of livestock and poultry; collecting rubber; planting, cultivating and harvesting rice and feed grains; and handling work animals and mechanical equipment such as tractors, shop tools and farm implements--the school hires experienced laborers to handle these operations.

There are ways by which this supervised farming program could be improved--more funds could be budgeted for this program, teachers could be given practical in-service training, experienced outsiders could be brought in on either short or long term bases, vacation schedules could be rearranged, etc. But underlying all these and other remedial measures is the question as to whether the schools really want to improve the supervised farming program. If the real objective of the schools is to prepare students to pass university entrance examinations, then it would be foolish for them to concentrate on overhauling the practical aspects of the instructional program.

It should be stated at this point that the writer is not arguing against a good program of general education in the agricultural schools. Nor is he in favor of considering vocational education solely as terminal education. Vocational education should be an integral part of an overall system of education and, as such, due consideration should be given its cultural content and its ability to foster the capacity for understanding, judgment, self-expression and adaptation to varying environments. Provision is also needed for students to continue and develop their academic skills and aptitudes. The best and most gifted students should be given the opportunity to continue their training in the field of agriculture at higher levels. This opportunity is now available to graduates of these schools, since they may either attend a two-year agricultural course at the technical level or they may enroll in the two-year program of agricultural teacher training. When discussing the curriculum then, the crucial question is one of emphasis. If the major objective of the agricultural schools is to train individuals for careers as farmers or farm service workers, then the emphasis in these schools must be on the teaching of agriculture--both in the classroom and in the field.

The actual amount of time that students should spend on supervised farm projects will partially depend upon the background of the students.

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[17] The higher agricultural schools of Taiwan devote 40-50% of their program to practical activities and the Philippines allows about 50%; see UNESCO, World Survey of Education III, Secondary Education (Paris, 1961), chap. viii.

That is to say, if students admitted to these schools come from farm backgrounds and have already had considerable farm experience, it follows that they can devote much of their time to classwork that will provide them with the scientific and economic principles of farm production and management. Students without farm backgrounds must, of necessity, concentrate on practical farm operations. This point is discussed by Wharton when he writes about the undergraduate level of university training. He contends that the success of the American land-grant colleges was in large measure due to the fact that the entering students came from farm backgrounds and already had experience in practical agriculture and could relate the academic knowledge they received at school to their own personal, practical experiences on the farm. He concludes that agricultural students in most underdeveloped countries do not have this agricultural background and that far greater attention and time should be given to the practical aspects of farming for these persons.[18] Thus, it can be seen that admission policy can greatly affect the direction of the school program. This leaves one to wonder how the present policy of admitting large numbers of persons who do not come from farm backgrounds was determined. This policy would seem to be one more factor that weakens the contribution that these schools can make to agricultural development.

Physical Facilities

Satisfactory facilities are an essential element of any school program. The brief discussion that follows describes the status of these facilities in the agricultural schools of Thailand.

General condition of buildings. In general, there is no building maintenance and this constitutes a continual problem. Latches, windows, chairs, downspouts, steps, old chalkboards, and roofs remain in broken or damaged condition. Bathroom facilities are not sufficient and the water supply is often irregular and not sufficient for bathing, drinking and cooking. Neither the inside nor the outside of buildings are painted, stained or oiled. Paths and walkways leading to buildings are not gravelled and become mud puddles in the rainy season.

Dormitories. These are overcrowded and many students who cannot afford to buy or rent a bed or mattress must sleep on the floor. The rooms are hot, dark, and often dirty. The bathrooms are not kept clean.

Dining rooms. These are generally overcrowded. The quality and quantity of food varies considerably from school to school. Stored food is not always kept under screens, animals are not always kept out of the kitchen and dining areas, and trays, dishes and cooking utensils are not always washed with rain water or well water. Dirt floors in kitchen and dining areas do not lend themselves to the maintenance of hygienic conditions.

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[18] Wharton, op. cit., pp. 35-39.

Equipment and Instructional Materials

Shop areas are small and tool supplies limited. There is no apparent system of shop organization or of tool storage and maintenance. Few models or other instructional aids have been developed. Funds for instructional supplies and tool maintenance or replacement are almost non-existent. There does not appear to be a balanced program of instruction in the essential areas--namely, farm power, farm machinery, building construction and maintenance, electricity, soil and water management, and the development of shop skills. Generally not available are soil testing equipment, such as soil augers and equipment to determine the size of soil particles; crop equipment, such as sprayers, dusters and fumigators; livestock equipment, such as clippers, emasculators, oilers and scales; poultry equipment, such as caponizing sets, debeakers and feed mixing machines; and horticulture equipment, such as pruning shears, saws and budding knives. Often equipment of this type that is available does not show much evidence of being used for instructional purposes, but rather is used by laborers to do income-producing field work on the school farm. For the most part the theory behind the use of equipment is taught in the classroom but actual practice with equipment is rare. In the shop, students may learn the principles of operation of an internal combustion gas engine, but they will not be taught the use of simple tools and equipment. On the farm they will not have any experience in such operations as plowing and cultivating.

Even the farm tools and equipment used for non-instructional purposes are lacking in care, supervision and follow-up. Maintenance is neglected; e.g., tractors no longer have sufficient compression (and resultant power) to pull a plow. Seldom are school funds budgeted for repairs and replacement parts.

Each classroom is provided with a small chalkboard and folding chairs with attached arms for writing space. Bulletin board space is limited and used for official notices rather than educational displays. Charts and posters are almost non-existent. Although funds are not available to purchase some of these teaching aids, instructors could show personal initiative and ingenuity in the preparation of aids from available materials.

Teaching materials are generally stored and displayed in a "museum" or display room rather than dispersed to the classrooms. This is partly because there are no subject rooms or rooms equipped for specific instruction such as science laboratory or animal husbandry rooms. Slide projectors are available but are not used due to a lack of educational slides.

Students have no textbooks. The supply of books in the library is limited and often outdated. Technical books are usually single copies, in English, and not related to Thai agriculture. There are no reference books in Thai. Most of the books in Thai are novels or other non-technical literature. Books are usually locked up in glass bookcases. No funds are spent for magazine subscriptions. Lighting is inadequate, particularly at night.

Much could be done to improve the living conditions and instructional facilities, equipment and materials in these schools without involving any substantial outlay of funds. One has only to visit the secondary schools and teacher training schools, which are located in the same towns as the agricultural schools, to see the difference that a little effort on the part of the staff and the students, with support and encouragement from their Department in the Ministry of Education, can make in the appearance of schools and in morale of students and staff. This situation has prompted a supervisor in the Agricultural Schools Division to comment that there seems to be a discrepancy between the public statements of the Thai Government regarding the importance of vocational education and the actual effort put into the development of the vocational schools, as contrasted with other type schools.[19]

The Life of the Student at School

This subject has been partly discussed in other sections of this chapter. We have noted that living conditions at these schools are rather depressing, that students must spend a portion of each day performing some type of "coolie" labor around the school, and that they are expected to sit passively and listen to lectures for the major part of the day.

Organized student activities are almost non-existent. The schools have teams which represent the students in sports competitions but there are no sports activities for the student body as a whole. The school may have a band, but again this is limited to a few students. There are few social, recreational or academic clubs.

In a typical day, students will get up early enough to put in an hour of farm work before breakfast; then sit in classes all day, except for a lunch break; and then put in another hour of work on the farm before dinner time. In the evening the students stay in their dormitories and talk to one another or listen to the radio. Lighting is inadequate for reading. On weekends the students either stay in the dormitories or else they walk around the town, generally in pairs. There is no dating or overt social contact with members of the opposite sex. Girls attending these schools live in town with relatives or guardians.

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[19] Niyom Srinoparut, "Some Opinions on the Planning of the Policy on the Improvement of Vocational Agriculture," Paper presented at a conference of vocational agriculture school headmasters, Bangkok, February, 1964. (Mimeographed)

One or two schools try to give the students more freedom, but these are the exception rather than the rule. In most schools there is no student government. A student may be appointed by the teachers as head of the senior class. His function will be to see that students follow regulations. Most of the teachers regard the students as children, even though many of them are nineteen or twenty years old. Although many teachers live on campus there is no observable student-teacher relationship aside from the extremely formal one in the classroom.

Just as physical facilities at other schools are healthier and more attractive, so is the social, recreational and academic life of the students more stimulating. For example, the headmaster at an agricultural school claimed that he has no sports or physical education for his students because they get enough exercise from their farm work. A teacher training school headmaster explained that he solves this problem for students engaged in agricultural activities at his school by a system of rotation--one week of farm work, one week of physical education and one week of sports activities. A list of selected club activities, at this same teacher training school (Table 13) gives an idea of what can be done to broaden horizons when a school takes an interest in its students. The grade levels at this school are comparable to the levels at the senior agricultural schools.

It is the belief of this writer that fostering a sound social, emotional, intellectual and physical environment for students is vital to their development into mature, healthy and capable citizens and workers and, therefore, improvement in this aspect of the total school program will result in a better finished product for the skilled labor force.

Coordination between the Ministries of Education and Agriculture

The lack of practical activities in the curriculum of the agricultural schools has already been noted. Few teachers are qualified along these lines and supervised farming projects are not working out as well as might be desired. There are other resources, however, upon which the Ministry of Education can draw to supplement the program in the schools. This requires coordination at both national and local levels. Through a series of focused interviews with Director-General level officials, the

TABLE 13

SELECTED CLUBS AND CLUB ACTIVITIES AT MAHASARAKAM TEACHER TRAINING SCHOOL, 1964

Club	Activity
Music	Beginning and advanced lessons; performances given for students and parents.
Drama	Thai classical dance lessons; performances given for students, parents and television.
Manual Arts	Learning to make things to enhance the school's instructional program; donating products to the school.
Audio-Visual	Lessons in maintenance and operation of photographic and broadcasting equipment and in programming techniques; opportunity to utilize this equipment; e.g., preparing and broadcasting news stories to the student body.
Journalism	Lessons in writing and editing; monthly magazine and school yearbook produced.
English	Lessons in public speaking and debate; guest speakers; assembly programs.
Library	Learning how to assist students in locating books, maintaining card catalog, preparing displays, and mending and shelving books.
Mathematics-Science	Exchanging and propagating knowledge through lessons for members, exhibitions, publishing of documents and field trips.

writer has attempted to gain an impression of the state of this coordination.

Coordination at the national level. The Governor of the Bank of Thailand, who plays an active and important role in educational planning and policy making, sees a need for much closer coordination between the Ministry of Education and the Ministry of Agriculture. He feels that the agricultural schools, the extension service and experiment stations should all work closely together.

The Director-General of the Rice Department believes that there is very little coordination or understanding of each other's programs on the part of the Ministries of Education and Agriculture. He lists three factors that inhibit a closer working relationship: (1) lack of interest in coordination at the higher levels, (2) lack of enough qualified extension agents who could work with the schools, and (3) a negative attitude on the part of some schools towards outside "interference" in their programs.

The Director of Extension Services in the Ministry of Agriculture considers it unlikely that personnel in the Ministries of Agriculture and Education are familiar with each other's plans and programs except in cases where personal friendships exist. To his knowledge there is little or no coordination between those Ministries with regard to the following:

1. Manpower planning and educational planning for farm service personnel for the agricultural sector. This would require estimates of demand for these persons and adjustments in the educational supply to match this demand.
2. Utilization of experiment station facilities by the agricultural schools. These could be used both for observation and for work-study programs.
3. Utilization of extension personnel in the instructional program at the schools. These resource persons could be used on a short or long term basis and both in the classroom and on the farm.
4. Utilization of students to assist extension personnel in the pursuit of their field activities. This would give the students some first-hand experience working with farmers and facing actual situations. At the same time it would enable the extension service to reach more people.

The Director of Extension Services concluded his remarks by stating that the Ministry of Agriculture has never been seriously approached on any of these matters but is quite willing to cooperate in all the foregoing aspects, since the Ministry is the major employer of the graduates from these schools and it is to the Ministry's advantage to see that the schools turn out a good product.

Turning to the Ministry of Education, the Director-General of the Department of Vocational Education also believes that officials in different ministries probably do not know about each other's programs unless they happen to be close friends. He sees the value of coordination between the schools, the extension services and experiment stations, but believes this coordination could best be accomplished on an informal basis in the provinces rather than through formal arrangements between departments in Bangkok. Echoing this sentiment is the Under-Secretary of State for Education. He, too, recognizes a need for coordination but feels that this should take place on an informal basis in the field.

The Director of the Technical and Planning Office in the Ministry of National Development feels that this is easier said than done. He claims that coordination is difficult because people at the Director-General level are quite self-contained and feel little need to cooperate with others, while at the provincial level the officials do not like to accept responsibility for any action, so they wait for orders to come down from above.

Coordination at the local level. Arb Nakajud, in his study of local government in Thailand, states the following:

> Poor coordination is common and even the units under the same ministry do not work together harmoniously as they should . . . as a result, even those administrative resources which are available locally are not well utilized and mobilized. Reasons for this deficiency include: (1) lack of authority to do so, (2) poor delegation of authority to their field representatives by the national government agencies,[20] and (3) insufficient will to achieve local coordination, which means that even that degree of cooperation which could be achieved by informal communication and consultation within the existing legal and organizational framework is not attained.[21]

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[20] There is little incentive for coordination, since all appointments and other personnel matters, as well as all financing and programming of projects, emanate from the separate departments in Bangkok in the form of directives to their local representatives.

[21] Arb Nakajud, "Local Government and Agricultural Development," The Role of Agricultural Economics in Economic Development, op. cit., p. 130.

Interviews with the director of a provincial extension office, a chief of an experiment station and teachers in a number of the agricultural schools support the contention of those who feel that coordination is not being effected at the local level.

The extension officer stated that he had never been asked to go to the nearby agricultural school to teach classes or help with student farm projects, but would be glad to do so. He further stated that he would like to work out some arrangement whereby senior students could work as part-time extension assistants under his supervision. Besides the rich experience this would provide the students and the help it would be to his activities, he saw another benefit accruing from such a program. As a result of working closely with these boys, he could provide a means of feedback to the school. That is, he could point out aspects of the school program that should be strengthened or new aspects that should be added. In this connection he felt that the schools are doing a satisfactory job in teaching agricultural theory but need to put much more emphasis on providing sound practical farm experiences for the students and on the provision of opportunities to learn how to work with farmers.

The chief of the experiment station remarked that he, too, had never been asked to visit the nearby agricultural school but would be glad to do so. He claimed that one or two teachers had taken their classes to his station, but only for a half-day observation tour. He suggested that, considering students receive little or no supervised practical farm experience at school, arrangements should be made for them to spend some time working at the station. They could, for example, work through a complete rice cycle--from the preparation of the seed bed to the marketing of the crop. This does not mean that they would have to work as full-time laborers during this period, but they could physically take part in each phase of the cycle. In the process they would be "learning by doing" about improved cultivation practices, improved seed varieties, determination of fertilizer to be used and methods of application, insect control, and so on.

After these interviews the writer went to the agricultural school and asked teachers there how they felt about these ideas. They answered that they would very much like to see these types of activities carried out, but it would necessitate a change in the emphasis of the school. As long as the school is kept under pressure by the Department of Vocational Education to prepare the students to pass the grade 12 academic school-leaving examination, the schools could not afford to take time away from classroom lectures for this type of program.

Visits to other agricultural schools have produced findings similar to the ones just noted. The impression gained by this writer is that the Ministry of Agriculture is able and willing to assist the agricultural schools of Thailand but is waiting for the first move to come from the Ministry of Education. Despite the apparent distaste of high level Ministry of Education officials for formal involvement in this situation, it is doubtful that the coordination needed to obtain the assistance of the Ministry of Agriculture can be effected informally at the local level. Furthermore, until the Ministry of Education decides to emphasize strongly agricultural education in the agricultural schools it is doubtful that much would be accomplished by attempts at coordination at any level.

Survey of Graduates

The final step in the study of the production of farm service workers is an analysis of the finished product itself--the graduates from the agricultural schools. At the time the writer surveyed all senior students of the higher agricultural schools (see pages 61-67) their forwarding addresses were obtained with such an analysis in mind. Six months later a follow-up questionnaire (see Appendix E) was administered to the graduating seniors.

The purpose of this questionnaire was to determine (1) whether or not the graduates had obtained employment and, if employed, whether the work they were doing was related to their training at school, (2) whether the original estimates of an insufficient supply of graduates to match the stated demand for them was correct, (3) whether the graduates felt that their training was helping them in their new positions, (4) suggestions they might have about how to improve the program in the schools, and (5) through what means they had obtained their positions. One question that was dropped from the questionnaire was why a job had been taken outside the field for which they were trained. Since their training was in general agriculture and all major employing institutions of these boys are concerned with aspects of agriculture, this question was considered irrelevant. When it was discovered that a large percentage of graduates had chosen to continue their education rather than obtain employment, the questionnaire was modified for them; irrelevant items were taken out and an additional item was added asking these persons what they planned to do upon completion of their present schooling.

Unfortunately, besides the large number of graduates continuing their education, the graduates who had sought employment had obtained their jobs only shortly before the follow-up questionnaire reached them and they were not in a position to evalute the effectiveness of their school training in preparing them for their work. Therefore, this question was also dropped. Its answer was partially derived through the interviews with employers who already had some experience with these graduates and through a brief questionnaire administered to district extension officers who had graduated from the agricultural schools within the last two years and who listed suggestions for improvement in the agriculture school program based on their experience on the job. Procedures in developing this follow-up questionnaire were similar to those for the questionnaire administered to senior students. The writer was cautioned against mailing questionnaires to the homes of these graduates since they were located in small towns and villages all over the nation. Return mail responses to questionnaires, even in the Bangkok area, have never been very satisfactory. Therefore, since a majority of them had either entered one of three schools for advanced training or else had come to work for a handful of departments in the Thai Government, they were contacted directly through these sources.

Present status of 1963-1964 seniors. A total of 173 graduates, representing 61% of these seniors, were reached by the questionnaire. The names and occupations of eight others, who had already been hired but had not yet reported to work, were furnished the writer by employing institutions concerned. The names of 18 students, who had failed their final examinations and did not graduate, were furnished the writer by the Agricultural Schools Division in the Ministry of Education. The Division told the writer that these people will either remain at home or pick up temporary work during the coming year and will then take the school-leaving examination when it is offered again next year. Although failing seniors do not usually repeat the grade, they do study for the examination on their own.

The writer would classify the 1963-1964 senior students just accounted for as persons contacted through a primary source--either directly by questionnaire, through their employers or through the Ministry of Education. A primary source is defined here as a source which has knowledge concerning the students which can be accepted as accurate with a very high degree of confidence. There were 199 students, or 71%, accounted for through these primary sources.

In an attempt to find out the status of the remaining 29% of the 1963-1964 senior students the writer contacted headmasters, teachers and classmates of these students and asked them if they knew of the whereabouts and activities of this group. In this way an additional 57 graduates or 20% of senior students were accounted for. Thus, a total of 256 persons or 91% of the 1963-1964 senior agricultural students were contacted.

Table 14 presents the status of 1963-1964 senior students as ascertained from all sources. While close to 50% of the senior students had indicated that they expected to continue their schooling after graduation, only 35% actually did.[22] Probably more than this number applied for

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[22] Compared to roughly 25% of the senior agricultural school graduates in Taiwan and the Philippines who continue their education; see USOM Education Division, "Summary of Four Week Observation Tour to Taiwan and the Philippines" (Bangkok, November, 1963). (Mimeographed)

TABLE 14

SENIOR STUDENT FOLLOW-UP SURVEY ON STATUS OF STUDENTS ASCERTAINED FROM BOTH PRIMARY AND SECONDARY SOURCES

	Number of Students		
	Sources		
Status	Primary	Secondary	Total
Attending School			
Bangphra Teacher Training	26	-	26
Mae Joh Technical Level	33	9	42
Nakornsrithamaraj Technical Level	29	2	31
Employed by Thai Government			
Land Development Department	7	-	7
Land Cooperative Department	10	-	10
Public Welfare Department	2	1	3
Livestock Department	5	-	5
Rice Department	23	2	25
Agriculture Department		4	4
Office of Extension Services, Ministry of Agriculture	46	-	46
Tobacco Monopoly		6	6
Nabon Rubber Organization		4	4
Sugar Monopoly		1	1
Irrigation Department		2	2
Department of Elementary Education (Elementary Teachers)	-	8	8
Department of Customs	-	1	1
Department of Corrections	-	1	1
Other			
Farming		7	7
Cultured Pearl Industry	-	2	2
Bangkok Bank	-	1	1
Bus Driver	-	1	1
Priesthood	-	1	1
Jobless--Staying at Home	-	4	4
Failed Senior Year Final Examination	18	-	18
Total	199	57	256

admission to advanced schools but were not accepted due to enrollment limitations. Almost 40% had indicated they would seek a government job in the field of agriculture and 41% actually did obtain such jobs. It is interesting that 10% had indicated a desire to engage in farming, while only 2% of the graduates accounted for actually did. Roughly, another 3% of the students took jobs as elementary teachers.

It will be recalled that the demand for graduates, determined through interviews with major employing institutions, was considerably more than the expected supply. This imbalance would have existed even if all senior students had been available for employment. The situation seems even more serious when one realizes that allowances must be made for persons who fail to graduate (6% of the 1963-1964 senior class), that many of the graduates will choose to continue their education (35% of the 1963-1964 senior class) and that a certain percentage will enter other occupations or fail to pass the employing institutions' entrance requirements. On the other hand, 27 agricultural school graduates from other years were hired this year alongside those persons who had just graduated;[23] once the technical level program becomes more firmly established, graduates will become available each year from both the senior and technical levels; many students who fail their final examinations and graduates who fail examinations given by employers will be likely to take these examinations again and to pass them in the next year or two; and finally, persons with non-agricultural training can be, and have been hired to fill in the gap left by the shortage of supply of graduates from the agricultural schools.

This table does not include the Community Development Department. Their demand situation with regard to agricultural school graduates is rather uncertain. They originally stated that they wanted 200 graduates. Then they told the writer that the Budget Bureau approved only 40 positions for these graduates. Finally, only 29 boys appeared to be examined for positions and of these 29, only 22 passed the written requirements. These 22 have not been included in the table because they had not yet had their oral interviews and it is possible, although not probable, that some of them may not pass this interview. Also, the Department will not release their names until the whole hiring process is completed and without their names it is impossible to know whether all 22 applicants are graduates from the 1963-1964 senior class or from classes from previous years. It can be assumed that a good number of them are 1963-1964 graduates and this will account for some of the graduates whose occupational status was not ascertained. At any rate the Community Development

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[23] There were also twenty-nine agricultural school graduates from other years who were enrolled in the first year of advanced educational programs. As an aid for future manpower planning, it would be worthwhile to find out what these people were doing before this year. This might provide an estimate of how many such people can be expected to appear on the labor market annually.

Department has hired persons without agricultural training for the remainder of their positions that were originally designated for agricultural school graduates.

The conclusion the writer has drawn from this somewhat confusing picture is that employing institutions faced no real manpower shortages in 1964, even though the original stated demand figures for agricultural school graduates far exceeded the 1963-1964 supply. Of course, this statement only applies to numbers of people and not to qualitative factors.

All these considerations, plus the inability of employing institutions to judge their future rate of expansion (beyond the next few years) and therefore, their inability to judge their future manpower needs, seem to call for a continuous review of both supply and demand factors with regard to the graduates of the agricultural schools. This review will require coordinated planning between the Manpower Planning Office in the National Economic Development Board, the Educational Planning Office in the Ministry of Education and planning bodies within the employing Thai Government agencies. Plans are being developed by the Department of Vocational Education to increase the enrollments in the agricultural school so that by 1970/1971 the number of persons graduating from these schools will have quadrupled.[24] While the program in these schools is in great need of qualitative improvement, there is as yet no indication that a need for such quantitative expansion exists.

Plans after graduation from school.[25] The purpose of this question was to find out (1) whether the future job expectations of the graduates who had continued in school coincided with the program in which they were enrolled and (2) whether enrollment figures (with allowances for failures and drop outs) are a satisfactory measure for estimating the future supply of graduates from these advanced programs. Table 15 summarizes in tabular form findings for this item.

It is interesting that four students from Mae Joh reported that they intended to enter farming upon completion of school. Their parents most likely have extensive land holdings. Nevertheless, the bulk of the students enrolled in technical level programs have stated that they intend to seek government employment in the field of agriculture. This

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[24] Provided an anticipated World Bank Loan is approved and facilities and staff can be expanded and upgraded.

[25] This question was asked of the graduates who had continued with further schooling after graduation from the senior agricultural schools.

TABLE 15

PLANS AFTER GRADUATION OF 1964 GRADE 13 GRADUATES ATTENDING ADVANCED SCHOOLS BY SCHOOL

Plans	Mae Joh Technical Level	Nakornsrithamaraj Technical Level	Bangphra Teacher Training	Total
Become a Farmer	4	--	1	5
Become an Agricultural Teacher	--	--	14	14
Get a Government Job in the Field of Agriculture	25	27	7	59
Get some other Government Job	--	--	--	--
Other [a]	2	--	--	2
Total	31	27	22	80

[a] Two persons would like to continue with further studies.

would seem to indicate that they were job oriented when they chose to enroll in this program and, therefore, enrollment figures would be a satisfactory measure to be used in estimating future supply.

This was not the case for students enrolled at the Bangphra Teacher Training School where more than one-third of these students stated a job preference other than teaching. This preference is more than just a fanciful wish. Conversations with these students revealed that they only entered the teacher training program because they were not accepted into the technical level program. A check with the Ministry of Agriculture further revealed that (1) graduates from the teacher training school have been seeking employment with the Ministry and (2) the Ministry, although preferring graduates from the technical level programs, will accept these boys. It would seem, therefore, that there will be a sizable number of defections from a teaching career on the part of students enrolled in the teacher training program and this must be taken into account in estimating future teacher supply.

This situation could be altered by taking such measures as (1) making it known to enrolling students that those who do not teach upon graduation from school will be required to pay the Ministry of Education a "tuition" reimbursement based on the school's per pupil cost and (2) obtaining agreement from the Ministry of Agriculture not to employ these teacher training school graduates. These measures may seem rather harsh and are only offered as suggestions. However, the writer believes that, while all countries have a certain amount of teacher training school graduates who never enter teaching or who defect from teaching after one or two years, this is a luxury that a developing nation can ill afford.

Opinions regarding improvements needed in the agricultural schools. Table 16 summarizes in tabular form the opinions of the graduates who were reached by this questionnaire regarding improvements needed in the senior agricultural schools. The total number of opinions (198) exceeds the total number of graduates responding to this question, since a number of them had more than one suggestion for improvement and all suggestions were tallied. Responses to this item were written in paragraph form. The Educational Planning Office in the Ministry of Education assisted the writer with the translation of these paragraphs into English. Five major categories were then developed around these responses. Close to 90% of the opinions listed fell into the categories of a need for more practical work (72 responses), a need for more farm and farmshop equipment and for instruction in the care and use of that equipment (79 responses) and a need for better teaching (21 responses). All groups responding to this item, including the teacher training school group, considered equipment needs more important than the improvement of instruction. It is interesting that these recent graduates considered the need for more modern equipment so important, whereas the Director level officials of employing institutions barely mentioned this need. As previously discussed, they felt that the greatest need was for instructional activities of a more practical nature which were closely related to the present day agricultural problems of the Thai farmer. It is somewhat disturbing that the students in training to be agricultural teachers were the ones who least recognized a need for inclusion of practical activities in the school curriculum. The writer believes this lack of understanding of real needs is due to the fact that the students in these agricultural schools are never really given a clear picture of the overall problems of agricultural development in Thailand and the role that farm service workers can play in resolving these problems. To acquire such an understanding would require more than passively listening to lectures about the situation. It would require first-hand observations and experiences on farms and with farmers.

There were 10 responses calling for greater emphasis on the academic portion of the curriculum. Since this is already the major emphasis of these schools, the writer assumes that this was meant to suggest that the academic program needs qualitative improvement; e.g., better trained teachers, textbooks, more library and laboratory facilities, and so on. Miscellaneous items, such as the need for better physical facilities, the need to cut down on the number of school days lost to the instructional program due to the large number of holidays

TABLE 16

IMPROVEMENTS NEEDED IN THE SENIOR AGRICULTURAL SCHOOLS/OPINIONS OF 1964 GRADE 13 GRADUATES BY PRESENT PLACE OF STUDY OR EMPLOYMENT[a]

Opinion	Total	Bangpra Teacher Training	Nakornsrithammaraj Technical Level	Mae Joh Technical Level	Department of Land Cooperatives	Rice Dept.	Office of Extension Services Ministry of Agriculture
More practical work needed. Instruction mainly classroom theory. Not enough supervised farm work or experiences in community to learn to put theory into practice.	72	4	8	21	7	10	22
Machines and tools of poor quality and insufficient quantity. Need more instruction in maintenance, repair and operation of farm and shop equipment.	79	10	21	13	3	24	8
Teachers inadequately prepared; main method of teaching is by lecture.	21	5	6	7	1	2	--
Need greater emphasis on classroom academic work.	10	-	-	3	-	-	7
Miscellaneous; includes need for better physical facilities, less time for holidays and extra curricular activities and more emphasis on courses in technical agriculture.	16	2	-	9	-	-	5
Total	198						

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[a] In addition to the responses shown in the table, one response for practical experiences came from the Land Settlement Division of the Department of Public Welfare. Another response for practical experiences and two for improvement in equipment came from Livestock Department.

and extra curricular activities and the need for greater emphasis on technical agriculture coursework, elicited 16 responses.

These comments by graduates reinforces the statements regarding the situation in these schools made by the writer and by the Director level officers of the institutions that employ these graduates. A further confirmation of the existence of these needs was obtained in a brief survey of 30 district agricultural extension officers (see Table 17). These men had graduated from the senior agricultural schools within the last two years so the program at the school was still fresh in their minds and at the same time their work experience gave them a perspective on the needs for improvement in the school program. Their opinions also boiled down to the same important needs: provision for more practical experiences, both inside and outside the school, provision for more modern equipment and provision for better instruction.

TABLE 17

IMPROVEMENTS NEEDED IN THE SENIOR AGRICULTURAL SCHOOLS: OPINIONS OF DISTRICT AGRICULTURAL EXTENSION OFFICERS [a]

Opinion	Number
Need more practical work experience on the school farm through supervised student farm projects. Emphasis should be on crop and animal production currently recommended by the Ministry of Agriculture to help promote agricultural development.	16
Need observation and work experience at nearby farms and experiment stations.	3
Need more modern farm and farm shop equipment.	4
Need to move away from teaching by lecture from notes.	3
Miscellaneous; includes need for greater emphasis on coursework in technical agriculture and for student follow up.	4
Total	30

[a] These officers are recent graduates from the senior agricultural schools.

Means of securing present job. It was observed in the survey of senior students (page 65) that they had made the decision to enroll in the senior agricultural schools on their own and without any guidance from the previous schools they had attended. The reason for the inclusion of Item 4 in this survey of graduates was to determine if they had received any guidance or placement assistance from the senior agricultural school in securing their present positions. It was found that this was not the case. Of the 84 graduates who answered these questionnaires, only 5 persons indicated that they were influenced or assisted by other persons in choosing their jobs--three by friends or relatives and two by an employment office. None reported any assistance from their schools.

This would seem to indicate that the schools have no guidance or placement services. As far as can be gathered they also keep no records on graduates.[26] However, the schools did receive notices concerning job openings from a number of employing institutions and these notices were most likely posted on bulletin boards or informally passed on to the student body in one form or another. It would probably be safer to conclude that, while individual students receive no formal assistance from the schools in locating and securing jobs, occupational information available to the school is passed on to the students. There is no present need for formal guidance services in these schools but there is a need for the development of connecting links between prospective employers and future employees. The former should be identified by the Department of Vocational Education and (1) asked to keep the Department informed about their manpower needs and (2) invited to visit the schools each year to describe their purposes and programs to the students. Students, interested in obtaining employment with a particular department, might even be invited to go out and observe its on-going program. These visits to the schools by prospective employers would also serve to acquaint them with the programs at these schools, about which they currently know very little.

Summary

1. Of the 1963-1964 grade 13 seniors who were accounted for in the follow-up survey, 35% continued with their schooling upon graduation, 41% obtained government positions in the field of agriculture, 3% took jobs as elementary teachers, 2% entered into farming occupations and 6%

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[26] As a matter of fact, many teachers have told the writer that the objective and sole responsibility of the school is to help these students to pass their final examinations. The agricultural schools in both Taiwan and the Philippines gather occupational information and assist in student placement; see USOM Education Division, "Summary of Four Week Observation Tour to Taiwan and the Philippines" (Bangkok, November, 1963). (Mimeographed)

failed to graduate. It is fairly certain that some of the unaccounted for group of 13% will either obtain government positions or engage in farming pursuits.

2. Institutions employing these graduates faced no apparent manpower shortages in 1964 in terms of numbers needed. Expansion of enrollments in the agricultural schools does not seem to be necessary at the present time.

3. Graduates enrolled in technical level programs expected to obtain jobs in the field for which they were being trained while less than two-thirds of those enrolled in the teacher training program expected to become teachers.

4. Close to 90% of the opinions about improvement in the agricultural schools listed by the graduates fell into the categories of a need for more practical work, a need for more farm and farm shop equipment and a need for better teaching. These graduates emphasized the equipment aspect much more than did employers of the graduates or graduates who were already out working in the field for a year or two.

5. No graduates reported receiving any assistance from the schools in securing their present jobs.

RELATED PROGRAMS OF AGRICULTURE

A discussion of the supply and demand for graduates of the agricultural schools would not be complete without a brief look at the educational programs preceding and following the senior level of agricultural instruction with which this study is primarily concerned.

Agricultural Education at the Junior Secondary Level

Junior vocational agriculture schools (grades 8-10) are now operating a complete program in six of the seventeen regular vocational agriculture schools. The objectives for instruction at this level have been (1) to prepare individuals for farming occupations and (2) to give individuals a background for further study in the field of agriculture. Students are enrolled in these boarding schools after completing seven years of elementary education. Table 18 shows the present curriculum.

TABLE 18

VOCATIONAL AGRICULTURE CURRICULUM, GRADES 8-10 (1964)

	Hours per Week		
	Grades		
Subjects	Eight	Nine	Ten
Academic			
Thai	3	3	3
English	4	4	4
Social Study	2	2	2
Mathematics	3	3	3
Science	3	3	3
Health & Physical Education	1	1	1
Fine Arts	2	2	2
Vocational			
Classroom Theory	4	8	8
Farm and Farm Shop Practice	13	9	9
Total	35	35	35

Source: Educational Planning Office, Ministry of Education.

The subjects in the academic portion of the curriculum do not require as many class hours per week as the same subjects in the academic secondary schools. On the vocational side of the curriculum, given the fact that the majority of the teachers at this level are unqualified in the teaching of agriculture, both the theory and the practice are extremely weak.

Enrollments in these schools over the past five years have dwindled from 2,472 pupils in 1960 to 712 in 1964. A well expressed statement of the probable reasons for the sharp decline in vocational school enrollments at this level (and, of course, this includes the agricultural schools) is contained in the Joint Thai-U. S. human resources study:

> A crucial question here is how to interpret the dwindling enrollments at the lower levels. There are no doubt many factors at work, such as limited facilities, poor instruction, and inadequate budgets. Also, it should be remembered that formerly graduates of the seventh grade were taken for training as vocational teachers. In a move to upgrade vocational teacher training, seventh grade graduates are no longer permitted to enter teacher training. Taking the teacher training group out obviously lowered the enrollment at this level.
>
> These factors have to do with the internal operation of the school. What can be easily overlooked is that there are probably forces outside the school itself making for lower enrollments in these levels. A public judgment is possibly being rendered about the utility of vocational education below the tenth grade. The judgment may have many facets. For example, one facet may be that school children do not regard the matter of vocations seriously until they reach a certain level of maturity. Until they do reach this level, they are not greatly interested in learning about specific vocations and are poor objects of educational investment.
>
> More importantly, the low enrollments may indicate that the economy itself is rendering a judgment about the utility of lower level vocational programs. It may be saying several things: (1) that there is no dynamic need for students trained at these levels, (2) that such need as does exist is being cared for better in other ways; for example, in agriculture through the family system and in commerce and industry through the apprentice system, and (3) that the greatest need in agriculture, commerce, and

industry is for competent graduates at higher vocational and technical levels.[1]

Present plans call for most of these schools gradually to develop programs at the senior level and phase out all instruction in vocational agriculture at the junior level.[2] That this is already happening is evidenced by the fact that only six schools are accepting beginning grade 8 students this year compared to eleven schools last year. Experiences in agriculture at this level are planned to become more of a preliminary and exploratory type and will eventually be introduced into the regular rural academic secondary schools as part of a comprehensive educational program.

Junior Level Programs in Selected Asian Countries

Before going into the problems confronting the development of such a program in Thailand, it might be well briefly to review the positions and/or actions taken by a few other developing nations with regard to programs of agricultural education at the junior level. This will help to place the decisions that Thailand makes in a comparative perspective.

Ceylon. Here junior secondary schools have been enriched by the inclusion of practical subjects. The curriculum is viewed as one providing not only for general education but also for practical activities of an exploratory nature.[3]

India. Hundreds of secondary schools have been converted from pre-collegiate academies into multipurpose high schools offering a number of practical courses along with the academic stream, ". . . so as to present the pupil with a variety of courses out of which he could make his choice according to his special interests. These offer one or more practical courses in Technology, Agriculture, Commerce, Home Science and Fine Arts in addition to humanities and science."[4]

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[1] Joint Thai-U. S. Report, op. cit., p. 42.

[2] This statement is based on interviews with the Under-Secretary of State for Education, the Director-General of the Department of Vocational Education and the Head of the Educational Planning Office. However, this determination is not completely resolved as there are certain high officials in the Thai Government who would like to see these schools continued but provided with better facilities and personnel.

[3] Government of Ceylon, "Investment in Education," Paper presented at the Regional Technical Assistance Seminar on Investment in Education in the Countries Participating in the Karachi Plan, Bangkok, April, 1964. (Mimeographed)

Problems encountered in this scheme have been the lack of trained teachers and teaching materials in the practical subjects, the limited range of these courses and the inadequacy of guidance facilities. Therefore, India is now emphasizing solving these problems in existing schools rather than expanding the program to additional schools.

Pakistan. The first five year plan recognized a need for instituting changes in the high school curriculum based on the principle, ". . . that secondary education has its own objectives in terms of the needs of youth. It should no longer be treated merely as a preparation, in a rigid and mechanistic way, for a written examination based upon university entrance requirements."[5] The plan went on to state that rather than relying upon a series of separate vocational and academic high schools, ". . . the solution is to braoden the curriculum of each secondary school, with emphasis on those aspects of economic life which are of greatest concern to the community and which provide the most probable outlet for our youth. For example, rural schools should be encouraged and assisted to add pre-vocational training in agricultural and commercial subjects, city schools should be encouraged to add technical and commercial subjects. Under this concept, secondary schools, both middle and high, would become multipurpose schools providing a general education with a practical bias adapted to the interests of children and their life in the community."[6]

A weak point in this newly established multipurpose program was the lack of adequate pupil guidance. Accordingly, provision was made in the second Five-Year Plan for the introduction of guidance programs to aid students in selecting courses consistent with their interests and abilities as well as with the economic needs of the community. This weakness, however, did not deter the planners from moving ahead with the establishment of these comprehensive schools. The Second Plan called for the introduction of agriculture courses in 50 senior high schools in East Pakistan and in 250 middle schools and 45 high schools in West Pakistan during the Plan period.[7]

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[4] Government of India, Third Five Year Plan (New Delhi: Planning Commission, 1961), p. 587.

[5] Government of Pakistan, The First Five Year Plan, 1955-60 (Karachi: National Planning Board, 1958), p. 549.

[6] Ibid., p. 551.

[7] Government of Pakistan, The Second Five Year Plan, 1960-65 (Karachi: National Planning Board, 1960), pp. 342-343.

Worldwide Trends in Secondary Education

UNESCO experts have surveyed worldwide trends in the secondary school curriculum and find that the conception of general studies has become enlarged to include subjects that once would have been regarded as vocational skills suitable only for those young people who were preparing to use them in their daily work. They note that when a country separates its students into different types of schools, the curricula within these schools remains much less flexible and more firmly patterned than similar curricula in comprehensive type schools. UNESCO reports that ". . . resistance has often been felt when attempts have been made to direct pupils from the traditional academic courses into courses emphasizing agriculture, handicrafts, industrial arts and other fields regarded as more useful to the pupils in the light of their level of ability and to the needs of the community."[8] This resistance is most notable in the stage of educational development which is between the early stage of secondary education being used for the limited selection and training of an elite and the later stage when, as more and more people complete a secondary education, it becomes clear to the community that the secondary schools have become a part of the broad and universal facilities providing the basic education needed by all citizens no matter what their abilities or what their position in society is likely to be. The UNESCO survey draws the following conclusion:

> Seen from the most general point of view the major curriculum movement of the present age is towards a synthesis of this kind;[9] but some countries are much further along the way than others, and at each stage of development the elements of the curriculum are different and reach a different balance.[10]

While it is helpful to perceive the general direction of change throughout the world in order to understand better a country's difficulties and efforts at improvement, the UNESCO conclusion leads one to realize that what is suitable at one time and place may not be right at another. This fact is pertinent to an appreciation of the present state of the curriculum in any country.

Even though countries may recognize a need for changes in their curricula, there can be a danger in moving too rapidly to bring about these changes, as was noted in the cases of India and Pakistan. The basic question then in the establishment of agricultural education in the academic schools is the rate at which it should be introduced.

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[8] UNESCO, World Survey of Education III, Secondary Education, chap. vii, p. 143.

[9] Between general education and vocational training.

[10] UNESCO, World Survey of Education III, Secondary Education, chap. vii, p. 148.

The Junior Level Program in Thailand

Official recognition in Thailand of the need for comprehensive type programs can be traced back to the Royal Proclamation which put into effect the National Scheme of Education as of April 1, 1961 and which introduced elective coursework in agriculture into the regular secondary schools on an experimental basis under the joint sponsorship of the Departments of Secondary and Vocational Education. The role of the latter was to furnish the teachers and instructional materials for this project.

The objective of this innovation was to develop the skills, attitudes and abilities necessary for productive employment in agricultural occupations of those students who would most likely not continue their program of studies. Students enrolled in this program would take academic subjects along with other regular secondary students but would take subjects in agriculture as electives (see Table 19). This would enable students deciding to continue with an academic program to do so. Referring back to Table 18, it can be seen that the course requirements for *both* the academic and vocational subjects are heavier under this experimental program than under the program in the junior vocational agriculture schools.

This experimental program was instituted in 1962 at the grade 8 level in three secondary schools. That same year the Minister of Education contemplated a loan from the International Development Association for the establishment of 200 new comprehensive type secondary schools and the improvement of 200 existing schools. In the loan proposal he stated, "Vocational courses according to the needs of local communities will be offered, mostly agriculture. This is to prevent pupils from flocking into the cities and to encourage young people to return to their farms or to carry on their parents' occupations. Attempts will be made to convince farmers that agriculture is not to be abandoned, and the younger generation will be trained to make use of scientific knowledge to improve their farms and as a result their income will be increased.[11] This proposal was not approved by the IDA and in 1963 a new proposal was prepared--this time seeking a loan from the International Bank for Reconstruction and Development. However, this proposal, prepared under the direction of the Governor of the Bank of Thailand, took a different

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[11] M. L. Pin Malakul, "Proposed Project for the Development of Vocational Secondary Education in Thailand to be Presented to I.D.A." (Ministry of Education, Bangkok, April, 1962), p. 2. (Mimeographed)

TABLE 19

PROPOSED SECONDARY SCHOOL CURRICULUM, GRADES 8-10 (1960)

Subjects	Hours Per Week	
	Regular Course	Agriculture Course
Thai	4	4
English	4 or 6	6
Social Study	4	4
Mathematics	5	5
Science	3	3
Health & Physical Education	2	2
Fine Arts	2	2
Practical Arts	6 or 4	-
Vocational Agriculture	-	9
Total	30	35

Source: Department of Secondary Education, Ministry of Education.

position with regard to comprehensive type programs. It states, "the principle for establishment of a comprehensive school is magnificent, but it is very expensive. The main problem is not only the matter of finance, but providing the personnel. There is a need for staff members and a capable school principal who will pay careful attention to the studies of the students. It seems that we are not yet ready to establish comprehensive schools."[12]

The contention that comprehensive schools are very expensive is hard to understand, since most people, both for and against them would agree that they are relatively efficient and economical schools to operate, especially when compared to the Thai practice of operating several different kinds of secondary schools frequently in the same small town.

Under the category of staff members, the Governor would include counseling and guidance personnel to insure that the best students are identified by the end of the 9th grade at the latest and placed in a strong academic college preparatory program. The opinion of the Director-General of the Department of Secondary Education coincides with that of the Governor. The reason he advances for not moving ahead more rapidly in introducing the comprehensive program into other schools, besides the three in his experimental project, are insufficient funds and lack of qualified personnel. In addition, he would like to wait until the experimental project is further evaluated.

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[12] Government of Thailand, "Loan Project for Educational Development" (Committee for the Review of Educational Programs and Development Priorities, Bangkok, July, 1962), p. 6. (Mimeographed)

The experimental project has been in operation for two years now and some initial evaluation can be made. Some of the problems encountered in the project have been:

1. A lack of understanding on the part of the teachers and headmasters in these schools. There was a tendency for the academic staffs to look down upon the agricultural teachers. The writer believes that an explanation of the important role this program plays in national development, accompanied by strong overt emphasis and support by the Director-General of the Department and other top officials in the Ministry, would serve to alleviate this situation.

2. Problems of coordination due to the involvement of two departments in the program. This is no longer an issue, since instructional materials have already been developed and the agricultural teachers, formerly under the Vocational Department, have been transferred to the Department of Secondary Education. However, the Secondary Department does not yet have a strong agricultural supervisory staff and, especially if the program is expanded to other schools, the supervisors from the Agricultural Schools Division will have to continue to lend some assistance to the program.

3. Problems of budget; e.g., the Secondary Department claims that it does not have a budget category that provides for travel expenses and overtime pay in order for the agricultural teachers to go to the homes of the students and supervise their home farm projects. Also, the Department claims there is not enough money available to expand this program to other schools. The writer discussed these points with officials in the Budget Bureau. Their answer to the first claim is that adjustment of budget categories is a matter that can be handled internally within the Department of Secondary Education itself--if it chooses to do so! In regard to additional funds for teachers and equipment needed to expand the program, they indicated that if the Ministry of Education considered the program

to be successful and desirable, they would almost surely approve a planned, orderly expansion in this direction.

While there have been problems in the development of this program, there have also been some encouraging signs; e.g., despite the budgetary problem, the students developed commendable supervised home farm projects. Also, good teachers were selected for this program and they made a favorable impression on students and parents alike.

No one has attempted to determine whether parents see a need for this type of program. Most Ministry officials will say that all parents desire a straight college-preparatory program for their children, but they have no documentation to support this statement. A small piece of evidence on the other side has recently come to the attention of this writer. A private academic junior secondary school has requested permission from the Ministry of Education to include agricultural courses in its program. Since this school is in the educational field as a business venture, it is unlikely that it would make such a request unless there was a demand on the part of the community it serves for this type of education.

Another issue at stake in the expansion of this program to other schools is the shortage of qualified staff. As far as agricultural teachers are concerned, this does not seem to be a serious problem. The Agricultural Teacher Training School at Bangpra is capable of turning out enough graduates to meet the needs of a modestly expanding program in these secondary schools. As a matter of fact, some of the recent graduates have had some difficulty obtaining jobs, since a larger number were accepted into the agricultural teacher training program than the vocational schools could absorb with the unfulfilled expectation that they would be hired by the Elementary or Secondary Departments upon completion of their studies.

As far as counseling and guidance is concerned, at the very minimum there is unquestionably a need for (1) developing and maintaining cumulative records on each student, (2) using these records and other pertinent data to help determine the programs that individual students should engage in, (3) keeping parents familiar with school programs and the progress of their children, and (4) providing occupational information and vocational guidance for students. This does not mean, however, that a school must wait to have a staff of trained counselors before it can make its first moves towards developing a comprehensive type program. With a certain amount of in-service training the teachers and the headmasters, themselves, can serve as counselors and they [illegible] be reinforced by assistance from qualified persons in the Ministry.

One final argument against introducing agriculture into these academic schools should be mentioned. It has two facets. The first is that the academic grades of students taking agricultural courses and doing home farm projects will deteriorate. To date there is no evidence to support this fear. In fact, so far the students in these experimental programs have done as well or better in their academic work as those taking only academic courses.[13] The second facet is the feeling that it would be a waste of time for possible college bound students to take agricultural courses, since they would have no use for it in their later lives. The point here is that the majority of these students will *not* go on to college but rather will enter into some type of agricultural occupation (in the broadest sense of the word).[14] Besides, to follow this line of reasoning one could challenge many so-called academic courses now required in the schools but never used by the majority of students after graduation. Forgetting strictly utilitarian objectives for the moment, a question to be asked here is, in a society which is predominantly agricultural and rural, is not exploratory coursework in the fundamentals of agriculture an end in itself?

Courses in agriculture need not be of the how-to-do-it variety. They can touch on such broad areas as science, mathematics, economics and sociology. They should be articulated with previous work taken at the elementary level and more advanced studies at the upper secondary level.

Summary

Agricultural education at grades 8-10 is being phased out in the vocational schools and is making its way into the rural academic schools on a rather cautious, experimental basis. Students taking agricultural courses in the junior academic secondary schools will have three choices open to them upon graduation. They may continue their academic education, they may transfer to a senior agricultural school or they may leave school. In the case of the latter two choices their background training in agriculture should stand them in good stead. It is the belief of this writer that the Department of Secondary Education can and should take steps to expand this program at a more rapid pace than is currently being planned.

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[13] While this could be attributed to the Hawthorne Effect, other evidence in Thailand and the United States would tend to substantiate the preliminary finding mentioned above.

[14] Wharton (*op. cit.*, p. 8) states the case as follows: "In view of the probability in today's early stage nations of somewhat slower ratios of rural-urban migration, I would argue in favor of a higher content of agricultural or rural subjects in the curriculum of secondary schools in rural areas. The best students will naturally continue on to higher levels of education or migrate to urban areas to enter semi-skilled occupations. But the vast majority of students in rural secondary schools will return to occupations either directly or indirectly related to agriculture."

Technical Level Training in Agriculture

The Department of Vocational Education has instituted a two year technical level program which is designed to follow the three-year program in the senior agricultural schools. The first technical level school for agricultural training was established at Mae Joh in 1963 and is now in its second year of operation. The school at Nakornsrithammaraj opened the first year of this level in 1964. It is expected that the schools located at Surin and Ayuthaya will commence technical level programs in 1965 and 1966, respectively. A total of 86 first-year students and 60 second-year students are currently enrolled in these programs. It is estimated that by 1970 there will be 228 students graduating from this program yearly.

The establishment of this technical level is predicated on the belief that (1) the senior agricultural program is of a basic, exploratory nature and is inadequate for individuals to perform the role of advisor to farmers or to engage in related agricultural activities and (2) there is a demand for individuals with specific technical training in agriculture beyond the level now offered in grades 11-13 but below the level of the college graduate.[15] Furthermore, since these graduates will be better qualified than those at the senior level, they will command higher salaries and civil service grades. This will make them more content, help to build up the reputation of the agricultural schools and, ultimately, serve to attract better students into the program. Departmental personnel, looking at such a development from an internal point of view, see more prestige and more promotions in the offing. The writer sees nothing wrong with the desire to enhance the prestige of the schools and the personnel who operate them but believes that justification for the development of the technical level must rest on satisfactory evidence that there is a sufficient demand for graduates at this level and that the schools are capable of producing the supply.

It is not at all clear that a demand does, in fact, exist at the present time. The survey of commercial firms selling agricultural products certainly did not indicate any demand from that quarter. Interviews with Government departments hiring agricultural school graduates indicated that some departments might be interested in hiring graduates at the technical level, if additional funds for this purpose became available. Actually, they have not really given much thought to this subject. Based on these interviews the writer has estimated that the maximum demand for the next few years would range somewhere between 90 to 125 graduates per year. This is only about half the number of persons that are expected to be graduating yearly by 1970.

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[15] Pittha Bunnag and Harry Kitts, "Projected Role of Higher Technical Institutes in Vocational Agriculture for Thailand" (Joint USOM/Ministry of Education Report, Bangkok, November, 1962), p. 5. (Mimeographed)

Some of the departments interviewed wondered whether the objectives of the technical level program could not be better satisfied by concentrating on strengthening the programs in the senior agricultural schools rather than establishing new programs. As a matter of fact, what seems to be happening is that the technical level is merely becoming an extension of the program of preceding years; that is, the students are too poorly prepared to specialize and are just getting the instruction they should have received at the senior level.

Many of the teachers are alarmed over the decision to establish the technical level. They feel that the schools do not have the staff, facilities, or students with an adequate base of training to embark upon such a scheme. They point out that the senior level program includes little supervised farmwork and emphasizes academic coursework even to the disadvantage of classroom work in technical agriculture. They wonder how students can jump from such a situation right into a technical level! Introduction of this program too rapidly could actually cause its collapse before it has much chance to get started. For example, it stands to reason that the weaker the program in the senior level, the weaker will be the technical level program. Yet the best teachers at the senior level will be pulled out to teach in this program. If anything, these teachers should be working with freshmen entering the senior agricultural schools, since so few of these students have had previous agricultural training or farm experience.

Finally, the statement that senior agricultural programs are inadequate for farm service occupations is one that should be challenged. The number of years of schooling required for this work should not be determined in a vacuum. Whether farm service workers need to have three years of general agricultural learning at the senior level, an additional two years of more specialized training, or even perhaps only three years of training at the junior level, depends on such factors as the availability of university graduates in agriculture, the general educational level of the agricultural community and the stage of development of agriculture itself. The higher these factors are, the greater the need for more specialization and larger numbers of people.

Summary

Before pushing ahead too fast with technical level programs, it would be well for the Department of Vocational Education to make certain that there is a real demand for graduates at this level and that the schools can adequately satisfy this demand without weakening other parts of the total school program.

Agricultural Teacher Training

At the present time there are two institutions in Thailand offering programs in agricultural teacher training. There is a degree program offered in the Department of Rural Education, Faculty of Agriculture at Kasetsart University and a certificate program at Bangpra Agricultural Teacher Training School. The University program comes under the jurisdiction of the National Education Council, while the program at Bangpra is under the Department of Vocational Education in the Ministry of Education.

The degree program at Kasetsart University. The five-year degree program at Kasetsart requires three years of general education and two years of specific concentration in agricultural education. There are no faculty members assigned specifically to teach full-time in this program. The teaching staff is composed of faculty within the Department of Rural Education, of which the Division of Agricultural Education is a small branch. In addition, officials from the Agricultural Schools Division in the Ministry of Education are called upon to teach part-time. This is a new program and the first graduates were turned out in 1959. The last few years have seen from 10 to 15 persons graduating each year. Admission to the program is based on the achievement of a satisfactory score on the national university entrance examination. There is no requirement for students to come from an agricultural background or to have had any previous agricultural training. As a matter of fact, students from the senior agricultural schools cannot enter the program unless they (1) can pass the national entrance examination and (2) are willing to enter without any credit given to them for their year of training beyond grade 12. Many of them would be willing to lose credit for their work in the senior year of their secondary school program, but they are not strongly enough prepared academically to pass the national entrance examinations. No supplementary written or practical examination in the field of agriculture is given which could be weighted in with the national examination. No follow-up records have been kept on the graduates in agricultural education, but it is generally assumed that they either obtain teaching positions in the senior agricultural schools or else they become agricultural extension or community development field workers.

It should be mentioned that there is also no provision made for graduates of the program at Bangpra Agricultural Teacher Training School to continue their education at Kasetsart. These people have completed the equivalent of three years of schooling beyond grade 12 (one in the senior year of their secondary school program and two in the teacher training school). At the moment these graduates are not being admitted to the degree program at Kasetsart. If they were admitted, they would almost surely be given credit for only one or, at the most, two years of schooling beyond grade 12.[16]

The certificate program at Bangpra Teacher Training School. The Bangpra Agricultural School was established in 1957 and served for three years as an in-service training center, upgrading teachers to the lower level teacher training certificate in agriculture.[17] In 1960 the school was designated as a Teacher Training Institute at the higher level. It was also to offer coursework at grades 11-13 to provide opportunity for the teacher trainees to secure practical teaching experience. In 1962 the first class of 80 students, including 9 girls, was enrolled in grade 11, the first class of 35 men was enrolled in higher teacher training and lower level in-service training was phased out. Also during 1962, teacher training programs at other schools--offered at the higher level at Mae Joh and the lower level at Surin and Nakorn Pathom--were discontinued. Lower level programs had been of three years duration. Students were admitted who had completed grade 10 in the junior agricultural schools. Graduates were qualified to teach in the elementary schools or in grades 8-10 of the secondary schools. With the drop in enrollment in the junior vocational schools and the decision on the part of the Department of Elementary Education to no longer hire these graduates, the program could not continue. The higher level teacher training program, admitting graduates from grade 13 of the senior agricultural schools, awards the Secondary Teaching Certificate in Agriculture to its graduates. They are then qualified to teach up to the level of grade 13.

There are 29 students now enrolled in the second year of the teacher training program and 40 freshman students. The size of each year's freshman class is determined rather arbitrarily by the Agricultural Schools Division. Availability of staff and facilities are taken into account but, as far as can be determined, no planning is carried out with other departments to find out their present and long-range needs for agricultural teachers or the training they would like these teachers to receive. Students apply directly to the school for entrance. They are given an examination which is made up by the staff of the school. Usually more students apply than can be taken. However, on occasion the examination has been unrealistically difficult and the passing scores have had to be lowered in order to fill the number of places available. At present, all teacher trainees come from the senior agricultural schools. This may change as the need becomes greater for farm mechanics teachers in the agricultural schools. Then boys from the technical vocational schools will also be allowed into the program.

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[16] The foregoing discussion is based on an interview held with the Head of the Department of Rural Education, Faculty of Agriculture, Kasetsart University.

[17] The following summary is based on a series of interviews held with the headmaster and assistant headmaster of Bangpra.

Final examinations for students are constructed by the school. Bangpra is moving away from basing a student's total grade upon an annual written examination and is now taking other measures into account in determining final grades such as term papers, student teaching and farm mechanics skills.

The first class of students graduated in 1963. Most of them were absorbed into the agricultural schools. The remainder went to schools in other departments in the Ministry of Education. Since enrollments are kept down, the graduates do not seem to have any difficulty in obtaining positions. Some of the 1964 graduates have applied to the Ministry of Agriculture for extension officer positions, rather than seeking teaching positions.

At the present time the course division for the two-year program is as follows:

Area	Hours	Percent of Total
Technical Agriculture	55	34
Academic Subjects	60	38
Education	45	28
	160	100

The number of hours per area is misleading in the above description, however, since it includes a large portion of hours designated as "practice." This encompasses such activities as student teaching under the education area, supervised farm projects under technical agriculture, and laboratory work under the academic area. In actual truth, due to shortages in qualified staff and facilities, there is not much "practical" work being done that contributes to the instructional program. A more meaningful course division breakdown may be obtained by looking at time allotments for theory only:

Area	Hours	Percent of Total
Technical Agriculture	19	24
Academic Subjects	33	41
Education	28	35
	80	100

The Department of Vocational Education is now in the process of changing the emphasis in the program by putting more hours into technical agriculture and taking hours away from both the education and academic areas. One problem is that all teacher training schools in the Ministry of Education must contain a certain core of education courses.[18]

The present objective of Bangpra is to train people to teach technical agriculture subjects. Whether their teaching will actually be limited to the field of technical agriculture is another question. Teachers of other subjects in the agricultural schools are supposed to be trained at other institutions. Therefore, heavy emphasis needs to be given to laboratory and field work and, in general, to the practical application of the theory learned in the classroom.

Bangpra does not differ greatly from the senior agricultural schools. Little use is made of the school farm for teaching and demonstration purposes and for providing students with practical experiences. The farm is not fully utilized for any purpose. In 1963 only 40% of the land area was under cultivation and private farms adjacent to the school were demonstrating better technology and management than the school. There is a lack of coordination with outside agencies. Except for an occasional visit to the nearby tapioca farm, the school takes no trips to farms, extension services or research stations. Nor do persons from these places come to the school.

There is a dearth of instructional materials, library facilities and science equipment. These deficiencies lead to a program of lecturing from notes. The present staff of 27 teachers is qualified as follows:

Ph.D.	1
M.S.	2
B.S.	11
Secondary Teaching Certificate	11
Less than Secondary Teaching Certificate	2

The Agricultural Schools Division considers a Bachelor's degree as the minimum desirable qualification for teaching in this program. Only 14 staff members now meet this minimum. Six others are presently studying for their degrees at the College of Education in Bangkok on a part-time basis. While many members of the teaching staff are qualified in their technical fields, they have not had sufficient training in methods of transmitting their knowledge to others. Another example of the lack of determination to effectively utilize agricultural education as an instrument of national economic policy is the failure to place the returned USOM-sponsored teachers, who have completed advanced studies abroad, in strategic positions. It is difficult to determine on what basis they have been assigned to the various schools under the Agricultural Schools Division but these assignments have often not corresponded to the greatest needs of the total agricultural school system; e.g., only two have been sent to the Teacher Training School.

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[18] The 35% of time devoted to education courses does not include student teaching.

The advisability of introducing an additional year to the present program, making it a three-year course beyond grade 13, is currently being studied. Perhaps the best way to emphasize the agricultural teacher training program at the present time is to improve the staff, facilities, curriculum and materials of the existing two-year program before attempting to expand the program by adding an additional year.

The FAO/UNESCO Position on Agricultural Teacher Training

In 1960 FAO and UNESCO jointly defined their position with regard to the preparation of teachers of agriculture for secondary schools. In their consultations they stated, "It is desirable that such preparation be undertaken in a Faculty (Department) of Agriculture in close cooperation with a Faculty (Department) of Education to permit concurrent training in both technical content and educational methodology."[19] In 1961 an FAO sponsored study of the status of agricultural education in the Asian region, with slight variation, reaffirmed the 1960 FAO/UNESCO position:

> One of the obvious weaknesses of the present system of secondary education in agriculture in most countries of the region is the lack of adequate facilities for preparing teachers of agriculture or chances for advanced or in-service training for them. . . . FAO should stress the importance of having one strong agricultural college in a developing country for both research and training. Among other things, the agricultural college should have a department of agricultural education charged with the responsibility for training teachers of agriculture for secondary schools, providing facilities for their advanced or in-service training, and for making suggestions for improvement in agricultural teaching based on research findings. Until this is done, it will be difficult to develop the secondary agricultural education adequately.[20]

It can be seen that both reports called for the establishment of degree level teacher training programs in agricultural colleges for preparing teachers of agriculture for secondary schools. This general recommendation may not be the best or only solution for Thailand but it certainly merits careful study. The crucial point is that no plans for the development of the agricultural schools can proceed without provision for an adequate staff of teachers. The Thai Government must face this issue and show its determination to develop the facilities necessary for the provision of these teachers. The lack of this determination at the present time is further evidence that agricultural education is not being effectively utilized as an instrument of national policy.

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[19] FAO/UNESCO, Consultations on Agricultural Education (n.p., 1963), p. 3.

[20] Chang, op. cit., p. 19.

Summary

Both the degree program at Kasetsart University and the certificate program at Bangpra have serious weaknesses.

Kasetsart lacks a full-time staff and has a negligible student enrollment. No provision is made for upgrading teachers in-service, for accommodating graduates from the senior vocational agriculture schools or for programs of less than degree level.

Bangpra is operating a program which has a disproportionate amount of time devoted to education and academic courses compared to the time spent on technical agriculture. Many teachers are unqualified and practical farm and farm-shop experiences are at a minimum.

There would seem to be a great need for a clarification of the agricultural education objectives of these two institutions, a study of their total programs to see what aspects need to be revised, upgraded, removed or expanded; and a determination of ways in which the programs in these institutions can be coordinated or combined. Whether or not the Thai Government will take such steps will be the true test of their intentions for and interest in agricultural education.

CONCLUSIONS AND RECOMMENDATIONS

There is a definite recognition by the Thai Government of the importance of agricultural development. Measures to promote increased agricultural production of higher quality are assigned first priority in the National Economic Development Plan. One of these measures is the extension of agricultural services to the farm population.

There will be an increasing demand for persons equipped with adequate skills to perform the extension function. The Plan calls for the expansion and improvement of efficiency of government agencies and public enterprises which serve the agricultural population. At present there is a great qualitative and quantitative shortage of the required technical manpower. Nationwide there is only one Amphur (District) agricultural officer to serve every 7,500 farm families. These men, plus others performing similar extension activities but in ministries other than the Ministry of Agriculture, are needed to provide both technical and economic knowledge to the farmer.

The hypothesis tested in this study is that agricultural education is not being effectively used as an instrument of national policy for the agricultural sector of the Thai economy. The test was conducted through an analysis of (1) the stated objectives and plans for agricultural education, (2) the financial effort directed towards agricultural education, (3) the policies of the Ministry of Education with regard to the agricultural schools, and (4) the actual programs currently in effect in the schools which are designed to implement these policies. The final test as to whether these schools are being effectively used requires a look at their product--the graduates. This was done with a view towards determining if they are obtaining employment in the fields for which they were trained and whether their training was related to their job requirements.

The focus of this study was on the senior agricultural schools (grades 11-13) since they are currently the main source of supply of farm service workers below the university level.

Stated Objectives and Plans for Agricultural Education

Plans for educational development, emanating both from the Ministry of Education and from the National Economic Development Board, call for greater emphasis on the expansion and improvement of vocational education and for relating education to economic development by assessing numbers of persons and types of skills needed in the labor force and adjusting the supply of human resources to match the current and future employment requirements. The National Economic Development Plan calls for the highest priority to be given to practical training in the vocational schools and for coordination with employing institutions to insure that the school curriculum is realistically geared to practical needs (see Chapters One and Two). From these official planning documents of the Thai Government it can be seen that educational planners and economic planners give public recognition of the importance of agricultural education.

Financial Effort Directed Towards Agricultural Education

The true test of a recognition of the importance of a program and of a determination to carry out that program is to be found in budget allocations for agricultural education. In recent years the Ministry of Education budget as a percent of the national budget has remained fairly constant. That portion of the Ministry budget allocated for vocational education has also remained constant and is consistent with budgetary commitment to vocational education in other nations of the Asian region. However, until 1964, less than 14% of this vocational budget was allocated to the Agricultural Schools Division. This low percentage is reflected in the programs and facilities of the agricultural schools.

In order to examine the policies and programs of the Ministry of Education with regard to the development of the agricultural schools, we now return to the model of the critical components and linkages (described at the outset of this study--Figure 1) that are considered essential to enable agricultural education to contribute effectively to agricultural development.

Components of the Agricultural School Program

The components, shown in the model in the box between the Ministry of Education and the schools, are restated below.

Admission policy (see pages 59-68). Students may enter these schools without a farm background or any previous agricultural training. The majority of students now entering would fit this description.

Girls are admitted to the program, although there is no apparent demand for them on the part of institutions that employ the graduates from these schools.

An increasing number of students view these schools as a means to prepare themselves for any kind of further academic studies rather than as a place to prepare themselves for agricultural occupations.

Recommendations. Agricultural schools should be more selective in their entrance requirements. Preference should be given to students with farm backgrounds who exhibit a desire to prepare for agricultural occupations. Incentives, such as free tuition and board, should be provided to attract these persons. Along with written examinations, some testing of practical knowledge on the farm should be included.

A policy of only admitting boys to the program should be seriously considered unless the employment of girl graduates seems possible.

Curriculum and instruction (see pages 73-83). The emphasis on the academic portion of the curriculum, particularly on the study of the English language, has been increasing in recent years. This is because students in these schools may now sit for college entrance examinations upon completion of grade 12.

The program for the girls is identical to the one for the boys.

There are no written objectives for the courses taught.

There are very few instructional materials available or utilized; this includes textbooks, workbooks, charts, graphs, specimens, etc.

Laboratory and library facilities and equipment are at a minimum and seldom used.

The predominant method of teaching is by lecturing from notes.

Most schools presently limit their supervised farming program to a few vegetable projects while livestock and crop production and overall farm management is handled by hired laborers. For the most part, the theory behind the use of equipment is taught in the classroom but actual practice with equipment is rare. School farms and farm shops are not used as tools of instruction for the teaching of agriculture.

Recommendations. The emphasis of these schools should be on agriculture. This includes both the scientific and economic principles of technical agriculture that are taught in the classroom and the application of these principles through practical activities that are experienced on the farm and in the farm-shop. This also includes an understanding of the economic and social conditions prevailing in rural Thailand.

A sound program of general education should be developed around the agricultural program.

The school farm should be used for supervised projects for students and demonstration to the students of recommended farm practices. More specifically, the school farm should be used for the following purposes:

1. Use the soil of the farm in teaching soil type, soil analysis, elementary soil physics and chemistry, irrigation, drainage, moisture control, fertility and soil conservation.

2. Use the plant production of the farm in the study of plant growth, plant selection and improvement, and the culture of specific crops.

3. Use the livestock of the farm in the study of animal selection and improvement, animal nutrition, and the control of animal parasites and diseases.

4. Use the products of the farm in gaining skill and experience in the care, use and marketing of plant and animal products.

5. Use the equipment of the farm to study farm power and equipment and its operation and maintenance and the ways of using farm equipment in a safe manner.

6. Use the records of the farm in the study of basic accounting, enterprise analysis and market records.[1]

Course objectives should be developed that are operationally defined in terms of increasing knowledge and skills and inculcating desirable habits and attitudes. This should be followed by course outlines, designed to implement these objectives, and lesson plans.

Top priority should be given to the development of instructional materials. Textbooks and reference books on technical agriculture written in the Thai language are urgently needed. A national textbook committee, composed of agricultural teachers, headmasters and supervisors plus textbook writers from the Department of Educational Techniques, should be formed. Funds should be set aside for the purchase of books and magazines for the library. More charts, specimens and other instructional aids should be prepared by teachers and students.

If girls continue to be admitted to these schools, the curriculum should be broadened to include such subjects as basic health and sanitation, nutrition and child care.

Professional staff (see pages 68-72). Approximately one-third of the present teaching staff lacks the minimum qualifications for teachers of this level.

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[1] The writer realizes that some of this instruction will be of a very basic nature, particularly in the schools with the weakest teaching staffs.

There is no organized program for upgrading these teachers.

Headmasters, the nerve centers of the schools, are not well trained professionally.

There are no librarians, nurses, guidance counselors, dormitory and food service supervisors, or other professional non-teaching personnel.

Recommendations. Teachers should be assigned to teach in special subject areas and special classrooms for these subjects should be developed.

Practical in-service training programs for teachers, utilizing outside resource persons whenever possible, should be provided. This training should include field trips to farms and experiment stations.

Provision should be made for guidance activities by giving one or two teachers in each school some basic training in this area.

All new agricultural teachers should be required to have a Bachelor's degree with specialized training in at least one phase of technical agriculture. These persons should be able to demonstrate competence in the application of that knowledge to practical farm operations.

Qualified youth with rural backgrounds should be encouraged to enter into the agricultural teacher training program. One means of encouragement would be provision of scholarships.

The prestige of the teachers and pride in their teaching should be built up through formal recognition of their work. One means of achieving this goal might be through a public radio and press campaign.

Teachers should receive extra salary for the extra hours they put in on the school farm or during vacation periods.

Headmasters should be provided with the opportunity for continued professional growth. New headmasters should be required to have a Master's degree with training and successful experience in both education and technical agriculture. They should be encouraged to delegate administrative responsibility to specially trained persons, such as farm managers, school accountants, student personnel directors, and curriculum supervisors, so that they can devote their energies to policy making, administration, and general overseeing of the school operations.

Ministry supervisory unit (see pages 69-70). The supervisory unit for the agricultural schools is understaffed, overburdened with administrative responsibility and lacking financial support. They are not in a position to perform supervisory functions.

Recommendations. The agricultural supervisory unit should be built up and provided with the necessary financial and administrative backing to enable it to function effectively as a professional unit. This will require a staff that is able to assist teachers in all the agricultural schools and in all areas of the curriculum through school visitations, development of in-service teacher training programs and development of instructional materials. Ways of coordinating activities with the other supervisory units in the Ministry should be explored. The possibility of merging all departmental supervisory units into one Ministry unit should be studied.

Physical facilities (see pages 81-82). In general, buildings are overcrowded and not well maintained. Paths and walkways leading to buildings are not gravelled and become mud puddles in the rainy season.

Recommendations. First priority should be given to the improvement of living quarters and paths leading to and from buildings.

Student participation in the maintenance of buildings and grounds should be encouraged.

Student life (see pages 83-85). Organized student activities--social, recreational or academic--outside the classroom are almost nonexistent.

Relationships between students and teachers are formal and only a few schools have any type of student government.

Recommendations. Some form of student government should be developed.

Social, intellectual and recreational extracurricular activities should be encouraged and supported.

Examination policy (see pages 73-83). A two-part final examination with emphasis placed on the academic portion is now administered to students completing grade 12. Students passing the academic portion of this examination may sit for college entrance examinations. A low percentage pass the grade 12 examination and, since none of those who passed went on to the universities, it may be assumed that most, if not all, of them failed the college-entrance examinations.

Recommendations. Besides measuring a student's performance, examinations should be constructed to test the effectiveness of the curriculum. If the curriculum emphasizes classwork and fieldwork in agriculture, then the examination should reflect the emphasis. This means for example, that other measures besides a written test should be developed. It also means that the final grade should include recognition of work accomplished during the year.

Students wishing to prepare for non-agricultural university studies should enroll in academic secondary schools at the pre-university level. Students enrolled in the vocational agriculture schools should not be encouraged to believe they can use these schools as a means of entering the universities through the back door.

The policy of preparing the students to pass the academic portion of the grade 12 pre-university final examination should be discontinued. Graduates from the agricultural schools will still have the option of continuing their education in technical level or teacher training level programs. This measure, plus the provision of scholarships for boys with farm backgrounds, should lead to a change in the present student composition of these schools. If these changes lead to a lowering of enrollments, as some claim they will, this will enable the schools to consolidate their staffs and facilities and should ultimately serve to strengthen, rather than weaken, the school program.

There will undoubtedly be graduates from these senior agricultural schools who were outstanding in their school work. These persons, after a period of successful experience on the job, should be encouraged to enter into advanced academic studies at Kasetsart University.

Linkages with the Agricultural School Program

Under the category of linkages, shown in the model through the use of double lines, we may conclude the following.

Articulation between levels. Students are receiving very little guidance from the junior academic secondary schools in deciding their future educational or occupational direction (see page 65).

There is a need for the development of agricultural programs in the junior academic secondary schools (grades 8-10) since the vocational schools at this level are phasing out their programs and the majority of students graduating from grade 10 will leave school at this point and enter into agricultural occupations. Also, those graduates who are admitted to the senior agricultural schools would already have a base of agricultural knowledge upon which to build. Programs of this nature are beginning on an experimental basis but the rate at which they are developing seems to be unnecessarily slow (see pages 100-110).

On the other hand, the newly-established program of technical level agriculture may be expanding too rapidly. It is not clear at the present time that there is a sufficient demand for persons with this level of training and it appears that this program will serve to weaken the senior agricultural school program, since it will draw upon their already overburdened staff and facilities (see pages 110-112).

Recommendations. Secondary school personnel at the junior level (grades 8-10) should be familiar with the program in the senior agricultural schools and should encourage students graduating from grade 10 who have agricultural interests and aptitudes to enter these agricultural schools. This calls for exploratory coursework in agriculture at the junior secondary level and also requires personnel with some training in counseling and guidance.

Given the fact that most students do not continue their education beyond grade 10 and that vocational agriculture schools at the junior level are phasing out their programs, it is strongly recommended that the program of agriculture now developing in the regular academic junior level schools be expanded at a more rapid rate than is currently planned.

Teachers of agriculture should be recruited from the two-year certificate program at the Bangpra Agricultural Teacher Training School. The Secondary Department should throw its full support behind this program.

Before moving ahead too rapidly with the expansion of the technical level, further studies should be made of the real demand for graduates from this level. The extent to which this program will disrupt or weaken the program in the senior agricultural schools should also be determined.

Coordination between departments within the Ministry of Education. Each department in the Ministry of Education has its own supervisory unit with specialists in the various areas of course content. For the most part these persons work only with the schools under their department. There is a great need for these units to supplement and complement each other's activities (see pages 69-70).

As far as can be determined, no planning is carried out between the Vocational Education Department and other departments in the Ministry of Education to find out their present and long-range needs for agricultural teachers or the training they would like these teachers to receive (see page 100).

Recommendations. The feasibility of merging the supervisory units, or at least of developing formal arrangements for a sustained coordination of efforts, should be studied.

The Educational Planning Office should assess the needs of the various departments for agricultural teachers and relay this information to the Agricultural Schools Division.

Coordination between the Ministry of Education and the National Education Council. At the present time there are two institutions offering programs in agricultural teacher training. There is a degree program offered at Kasetsart University which comes under the jurisdiction of the National Education Council and a certificate program offered at Bangpra Agricultural Teacher Training School which belongs to the Ministry of Education. Both programs have serious weaknesses.

Kasetsart lacks a full-time staff and has a negligible student enrollment. No provision is made for upgrading teachers in service, for accommodating graduates from the senior agricultural schools or for programs of less than degree level.

Bangpra is operating a program which has a disproportionate amount of time devoted to education and academic courses compared to the time spent on technical agriculture. Many teachers are unqualified and practical farm and farmshop experiences are at a minimum. There would seem to be a great need for a clarification of the agricultural education objectives of these two institutions (see pages 112-117).

Recommendations. There is a need for a study of the objectives and programs of both the degree program in agricultural education at Kasetsart University and the certificate program at Bangpra Teacher Training School. In particular, a determination must be made as to which institution will be responsible for preparing teachers for the senior agricultural schools and where agricultural teachers will be prepared for the other levels and streams in the educational system.

Coordination between the agricultural schools, the extension service and experiment stations. With few exceptions there is little coordination between the schools and nearby extension services and experiment stations with regard to (1) utilization of experiment station facilities and personnel both for observation and work-study programs, (2) utilization of extension personnel in the instructional program at the schools, and (3) utilization of students to assist extension personnel in the pursuit of their field activities (see pages 84-89).

Recommendations. Formal arrangements for coordination between these groups in order to attain stated national aims and carry out the types of activities just listed, should be made at the national level and officials at this level should follow through to insure that these arrangements are put into effect at the local level.

Coordination between the Ministry of Education and employing firms and institutions. At the present time planning for agricultural education is not coordinated with manpower planning for farm service elements. Admission policies and curriculum design for the agricultural schools are not related to numbers needed and types and levels of skill required (both agricultural and academic) in the agricultural labor force. There are few connecting links between employers and prospective employees to enable employers to become familiar with the programs in the schools or students to become aware of the various job opportunities that are open to them upon graduation from school. This coordination would be improved if the institutions and firms employing graduates from these schools were more certain of their future rate of expansion and the direction their programs will take (see pages 42-48, 84-89, and 93).

Recommendations. Provision should be made for representatives of employing institutions to visit the schools periodically in order to describe their programs to the students and to observe the school program.

A coordinating committee for overall manpower planning should be developed. Members should include the Ministry of Education, the National Education Council, the Civil Service Commission, the Budget Bureau, the Bureau of Labor, the National Statistical Office, the Ministry of National Development and a representative from a planning unit of each of the ministries responsible for economic development projects. Cooperation should be sought on both policy matters and administration. Without this cooperation manpower planning can have little meaning.

Since the National Economic Development Board is the basic organisation for economic development planning, this coordinating committee should be under the direction of the Manpower Planning Office of the National Education Development Board.

One important task of this committee would be the determination of the department or departments best organized to contact the farmer directly, those most suited to provide technical backstopping for the others, and the services each should be expected to perform. Once these decisions are made, manpower requirements can be determined and the agricultural schools can gear their programs to these requirements.

This coordinating committee should break down into smaller working groups whose composition would be determined by the particular aspects of manpower planning under study. For example, members from the Educational Planning Office and the Manpower Planning Office should maintain a continuous review of manpower demand and available and anticipated supply. This would include securing estimates of the future demand for graduates of the agricultural schools as a follow-up to this present study and identifying factors that are inhibiting the gauging of this demand.

In this connection the Educational Planning Office should determine the percentage of senior students expected to fail each year, the percentage who fail in previous years but who are expected to repeat their examinations and pass them, the number of graduates expected to continue their education rather than immediately seek jobs upon graduation, and the number of graduates expected to enter into other occupations. The Manpower Planning Office should determine what the graduates, who apply for new positions or enter advanced schools for the first time, had been doing previously. This office should also determine the numbers of graduates without agricultural training that are available for agricultural positions, if employing institutions do not make a distinction in the backgrounds of persons they hire for these positions.

A comparison of the effectiveness on the job of both types of graduates should be made. The employing institutions should be assisted in deciding just what type of person they want for their jobs.

The present enrollments in the agricultural schools should not be expanded until it is fairly certain that an adequate demand exists for more graduates from these schools.

The Manpower Planning Office should keep in contact with firms selling agricultural products and with other occupational groups related to the agricultural industry such as transport and processing industries. These groups are expected to expand in the future and in all probability will develop a demand for graduates from the agricultural schools.

The Product of the Agricultural Schools--the Graduates

Except for varying degrees of induction training, departments in the Thai Government which are carrying on extension activities have not developed planned programs of on-the-job training for the graduates they have hired from the agricultural schools. This seems to imply that they expect their employees to have acquired all the job skills they will need in their work prior to obtaining employment (see pages 44-45).

As indicated by the arrowed lines in the model, the three employment avenues open to graduates of the agricultural schools are teaching, farming or government employment as farm service workers. Although one of the stated objectives of the program in the senior agricultural schools is to train persons for careers as farmers, an insignificant number of graduates from these schools actually do enter into a farming career. Some graduates eventually feed back into the educational system as teachers. The great majority of the graduates obtain positions with departments of the Thai Government as farm service workers. Yet these persons do not understand economic and social conditions in rural areas, do not enjoy living and working with the farmer and are unable to apply the principles they learned in the classroom to the practical agricultural problems that daily face the farmer (see pages 43-44 and 90-97).

Recommendations.[2] Planning units should be established in each of the ministries responsible for economic development projects. One of the first tasks of such a unit in the Ministry of Agriculture would be a determination of the function of its on-the-job training programs for employees who are agricultural school graduates. The relationship of these programs to the curriculum in the agricultural schools would then have to be studied jointly by the Educational Planning Office, the Manpower Planning Office and the planning office in the Ministry of Agriculture.

SUMMARY OF CONCLUSIONS

This study has revealed that the majority of students now entering the senior agricultural schools of Thailand do not come from a farm background and have not had any previous agricultural training. They are presented with a classroom program which is heavily oriented towards non-agricultural subjects. They are provided with little practical experience on the school farm or in the farm shop. They are givenfew opportunities for experience outside the school with the local extension service or experiment stations. They are encouraged to prepare for university entrance examinations.

These students then take the grade 12 academic examination which is the pre-requisite for permission to sit for the university entrance examination. Most of the students fail this grade 12 examination. Even those students who pass, do not pass the university examinations.

Eventually these students will seek positions as farm service officials. These positions call for persons who thoroughly understand Thai farmers and Thai agriculture.

Based on the above qualitative analysis, the hypothesis is accepted that agricultural education is NOT being effectively used as an instrument of national policy for the agricultural sector of the Thai economy.

Even so, while there are many apparent weaknesses in the components and linkages considered essential for agricultural education to contribute to agricultural development, the writer believes that most of the problems reviewed in this thesis could be solved rather rapidly. What is needed is a willingness on the part of officials in the Ministry of Education to coordinate activities with other departments (both inside and outside the Ministry) which are concerned with either the process or the product of these agricultural schools. To solve these problems also requires a decision by these officials that the major objective of these agricultural schools is to prepare persons for careers in agriculture. This decision can then be translated into policies, and programs to implement these policies, that can most effectively accomplish this objective.

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[2] See pages 120 to 121 for other recommendations pertinent to this section.

Suggestions for Further Study

In addition to the suggestions for further study that are included in the preceding recommendations, there are other studies that should be undertaken. These would include:

1. A more detailed analysis of the specific academic and vocational skills required in the positions for which the graduates from the agricultural schools are hired (or required for the advanced schools the graduates attend) and the extent to which these graduates meet these requirements. Methods used to determine their effectiveness in meeting these skill requirements might include gathering employer and employee opinions, administering various tests and developing rating scales.

2. Identification of budgetary and personnel problems facing the schools and a determination of the role of the Budget Bureau and the Civil Service Commission in alleviating these problems.

3. Evaluation of the programs of agriculture in the junior secondary schools and the technical level.

4. Determination of numbers of students actually applying for admission to the agricultural schools as compared with the numbers being admitted.

5. A study of the role of the elementary school in agricultural development. This would include such items as:

   a. A study of the present agricultural program in the elementary schools with special emphasis given to the curriculum, methods of teaching and actual learning that takes place. Attention should be directed to determining the extent to which all courses contain a rural bias as well as to specific agricultural courses.

b. A survey of parents' attitudes towards such a program.

c. A determination of childrens' readiness for this type of program.

d. A study of the qualifications that will be required of teachers and the coordination that will be necessary between departments and ministries.

e. A study of the desirability and/or possibility of developing a community-school type program rather than adding agriculture to existing programs.

6. A study of the status of agricultural research in Thailand is needed. The importance of agricultural research has been touched upon throughout this study. It was noted in Chapter Three that the Six-Year Plan calls for the improvement and expansion of agricultural research so as to modernize farm techniques and to increase farm efficiency. In the section on coordination at the local level in Chapter Four, the opinion was expressed that students in the agricultural schools should avail themselves of the opportunity to find out about improved cultural practices, improved seed varieties, determination of fertilizer to be used and methods of fertilizer application, newer methods of insect control, etc., through participation in work-study programs at agricultural experiment stations. In the process of gathering the most recent research findings, it would be hoped that these students would become research-oriented in the sense that they would come to realize the need for continuous liaison between the farm advisory service and experiment stations.

It was noted in Chapter Five that suggestions for improvement in agricultural teaching should be based on research findings. In this same statement, FAO was called upon to stress the importance of having at least one strong agricultural college in a developing country for both research and training. All the steps that may be taken to improve upon the means for the dissemination of knowledge to the Thai farmer will be to little avail if research facilities and staffs are inadequate to continuously produce and test that knowledge. The writer would urge, therefore, that a study be undertaken of the status of agricultural research in Thailand--its problems and prospects.

Implications of this Study for Research in Other Nations

A valid question to be raised at the conclusion of this research is: Can the approach employed in this study be utilized in similar studies that might be conducted in other nations? Another question to be posed is: Can the findings of this study be generalized to situations in other nations?

The questions and the model introduced at the outset of this study have centered around the idea that there are certain critical components and linkages required for agricultural education to contribute effectively to agricultural development. The writer would hope that a variation of the questions and model might be used as a point of departure for similar type studies in other nations. It would also seem worthwhile for a future researcher to utilize some of the data-gathering techniques in this study and, particularly, to make note of some of the problems encountered in the gathering of the data.

However, the writer does not believe that it would be wise to attempt to generalize his findings to other nations at the present time. He recognizes that there are certain worldwide trends that can be predicted; e.g., shortages of trained manpower with secondary level education in most developing nations and a gradual movement of the economically-active population out of agricultural occupations and into industrial and service occupations. The writer is also aware that nations can be placed together into levels or stages of development based on economic, agricultural, educational or other indices that one may choose to use, and that many similarities may exist among nations thus grouped.

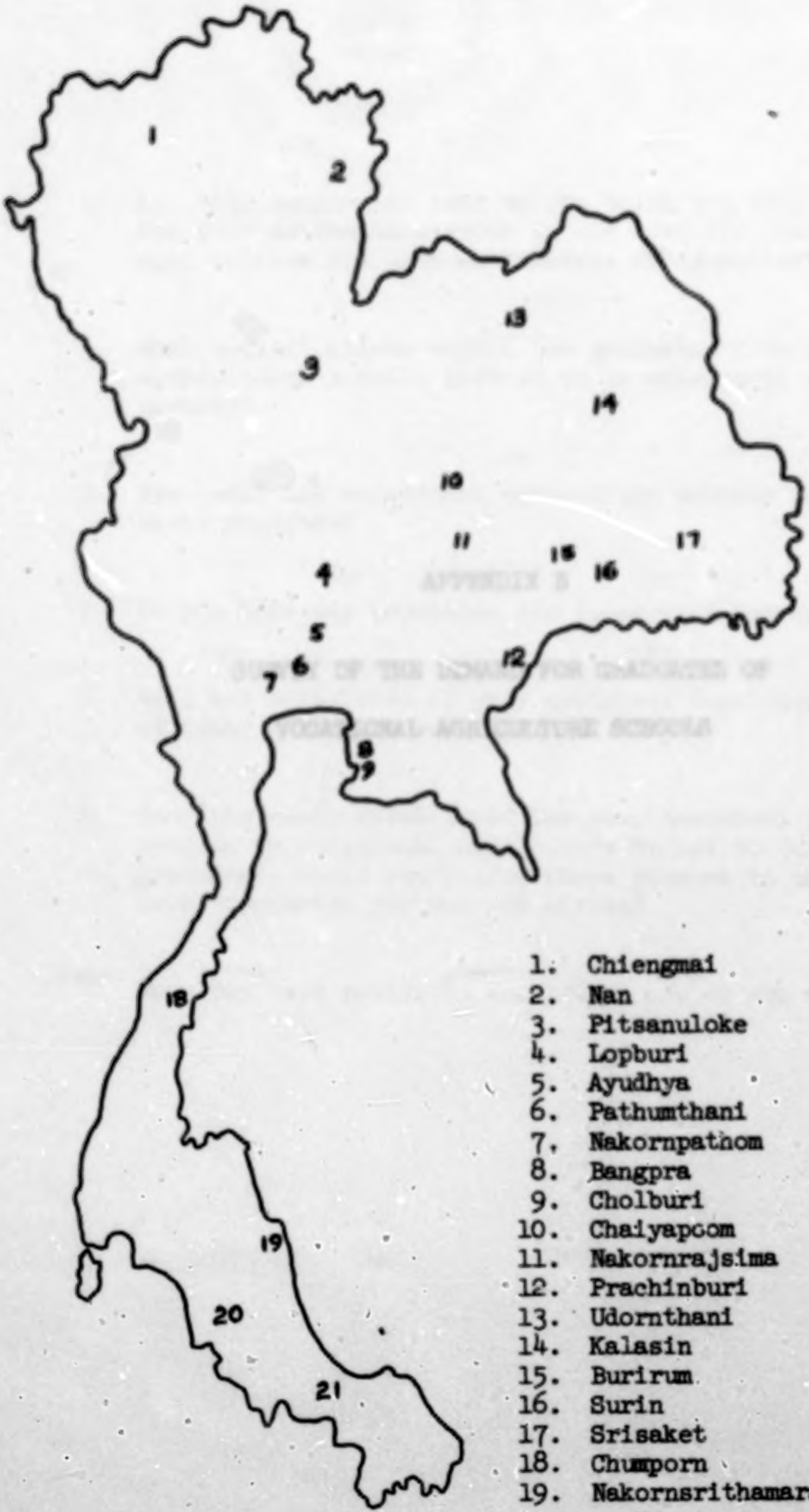
It is when one looks at the specific nature of the problems these countries are facing and the methods which they are using to solve these problems that it becomes necessary to leave the area of cross-cultural generalizations and take note of particular socio-cultural settings--customs, beliefs, values, inter-personal relationships, institutional arrangements, and so on.

The essence of this study has been an attempt to determine the extent to which the agricultural schools of Thailand are producing persons who, as farm service workers, understand Thai agriculture and the Thai farmer and are capable of assisting him in improving his agricultural productivity. The study has uncovered a number of factors that are inhibiting the development of this type of agricultural school graduate, such as the lack of coordination among operating departments within the Thai Government and the extreme academic bias in the agricultural school curriculum. These findings can probably be generalized to many developing nations, but the specific findings which fall under these somewhat general problem areas, their causes, and the means by which they may best be solved will most likely be peculiar to the Thai scene.

Therefore, the writer feels that it is in his approach to the problem of relating agricultural education to economic development in Thailand rather than in the specific findings derived from his research that this study may make an immediate contribution to future research which attempts to link educational development with national plans and purposes for agriculture. As more research of this nature is undertaken, it may become possible to further isolate and analyze the components and linkages crucial to agricultural education in developing nations and this will hopefully lead to greater understanding, prediction and control of educational programs as they relate to agricultural development.

APPENDIX A

LOCATIONS OF VOCATIONAL AGRICULTURE SCHOOLS IN THAILAND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1. Chiengmai
2. Nan
3. Pitsanuloke
4. Lopburi
5. Ayudhya
6. Pathumthani
7. Nakornpathom
8. Bangpra
9. Cholburi
10. Chaiyapcom
11. Nakornrajsima
12. Prachinburi
13. Udornthani
14. Kalasin
15. Burirum
16. Surin
17. Srisaket
18. Chumporn
19. Nakornsrithamaraj
20. Trang
21. Songkla

APPENDIX B

SURVEY OF THE DEMAND FOR GRADUATES OF VOCATIONAL AGRICULTURE SCHOOLS

1. How many people per year do you think you will be hiring for your extension service in the next few years, from what schools and with what levels of education?

2. What qualifications should the graduates from the senior agricultural schools possess to be successful extension workers?

3. How could the vocational agriculture schools improve their programs?

4. Do you have any provision for in-service training?

5. Will the activities of your employees duplicate the work of other extension services?

6. Once the newly established two-year technical level program in vocational agriculture begins to turn out graduates, would you prefer these persons to the senior level graduates you are now hiring?

7. When you have positions available, how do you advertise?

APPENDIX C

SURVEY OF FIRMS SELLING AGRICULTURAL PRODUCTS

Name of firm ____________ Address ____________

No. of employees ____________

1. Are there any agricultural school graduates now working for you?

   Yes _____ No _____

2. If yes, please answer the following for each graduate:

   a. Level of school completed ____________

   b. Type of work ____________

   c. Knowledge and skill requirements of this work ____________

   d. Age ____________

   e. Salary ____________ (monthly)

   f. Benefits besides salary ____________

   g. Hiring procedure ____________

   h. Length of time on the job ____________

   i. Provision for additional training on the job ____________

3. Do you think that the training these people received in the agricultural school was good enough for the job they have?

   Yes _____ No _____

4. If no, what suggestions do you have about what they should learn in school? ____________

5. Do you have any positions available, either now or in the next few years, for graduates of agricultural schools?

   Yes _____ No _____

6. If yes, please answer the following:

   a. How many positions now open? ____________________

      How many positions between 1965-1970 open? ________________

   b. What level or levels of school should graduate have completed:

      (________________) Kasetsart

      (________________) Technical Level

      (________________) Upper Vocational or Equivalent

      (________________) Lower Vocational or Equivalent

   c. What kind of job is available? ____________________

   d. What skills will be needed? ____________________

7. Have you even been asked to visit the schools to tell the students about job opportunities with your firm?

   Yes _____ No _____

8. Additional Comments ______________________________

APPENDIX D

SURVEY OF SENIOR AND FRESHMEN STUDENTS

VOCATIONAL AGRICULTURE SCHOOLS

GRADES 11-13

Name ______________________________ School ____________________________

Home Address ____

1. Last school attended:
   - ☐ Vocational
   - ☐ Academic
2. Major influence for attending this school came from:
   - ☐ Last school
   - ☐ Parent or guardian
   - ☐ Friend
   - ☐ Myself
3. Did you grow up on a farm?
   - ☐ Yes
   - ☐ No
4. What do you think you will do after you complete this school?
   - ☐ Continue with further schooling
   - ☐ Go into farming
   - ☐ Get a government job in the field of agriculture
   - ☐ Get some other government job
   - ☐ Do not know[a]
   - ☐ Other (please explain) ________________________________

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[a] Only included in freshmen questionnaire.

APPENDIX E

SURVEY OF GRADUATES

VOCATIONAL AGRICULTURE SCHOOLS

GRADES 11-13

Name ____________________ Address ____________________

Last School Attended ____________________

1. Are you now attending school?

   ( ) Yes

   ( ) No

2. If yes, what school? ____________________

3. If yes, what do you plan to do after graduation?

   ( ) Become a farmer

   ( ) Become a teacher

   ( ) Get a government job in the field of agriculture

   ( ) Get some other government job other than teaching or agriculture

   ( ) Other (please explain) ____________________

4. Are you now employed?

   ( ) Yes

   ( ) No

5. If employed, what kind of work are you doing? ____________________

6. Do you have any suggestions how the training you received at school could be improved?

   ____

7. How did you secure your present job?

   ( ) Through friend or relative

   ( ) Through personal efforts

   ( ) Through teacher or school

   ( ) Through public employment office

   ( ) Other (please explain) ____________________

APPENDIX F

LIST OF PERSONS INTERVIEWED AND INSTITUTIONS VISITED

1.	Abhai Chandavimol	Under-Secretary, Ministry of Education
2.	Adul Niyomwipat	Chief, Land Development Division, Department of Land Co-operatives, Ministry of National Development
3.	Amnuay Virivan, Dr.	Director, Technical and Planning Office, Ministry of National Development
4.	Amyote, Father Jacques	Anthropologist, Faculty of Political Science, Chulalongkorn University
5.	Bacon, Dr. G. H.	Colombo Plan Advisor in Agricultural Economics to National Economic Development Board
6.	Barbour, Ernest	USOM Public Administration Advisor
7.	BhongSakdi Varasundharosoth	Director-General, Department of Vocational Education, Ministry of Education
8.	Bhuntin, Attagara	Director-General, Department of Teacher Training, Ministry of Education
9.	Boonserm Weesakul, Dr.	Statistician, National Statistical Office
10.	Brohm, Dr. John	Thailand Director, Institute of International Education
11.	Chaiyong Chuchart, Dr.	Head, Division of Land Policy, Department of Land Development, Ministry of National Development
12.	Chakrabandhu, M. C.	Director-General, Department of Agriculture, Ministry of Agriculture
13.	Chamnien Saranaga	Deputy Director-General, Department of Credit and Marketing Co-operatives, Ministry of National Development
14.	Chan Meesook	Manager, Leaf Production Division, Thai Tobacco Monopoly
15.	Chang, Dr. C. W.	Regional Agricultural Advisor, FAO

16.	Charoon Vongsayandha	Director-General, Department of Educational Techniques, Ministry of Education
17.	Chern Manarat	Chief, Agricultural Schools Division, Department of Vocational Education, Ministry of Education
18.	Chusak Himathongkom	Chief, Agricultural Credit Section, Bangkok Bank
19.	Detchart Vongkomolshet	Economist, Technical and Planning Office, Ministry of National Development
20.	Ekavit Nathalong, Dr.	Department of Elementary Education, Ministry of Education
21.	Graham, David	USOM Vocational Education Advisor
22.	Headmaster and Staff	Ayuthia Agricultural School
23.	Headmaster and Staff	BangPra Agricultural Teacher Training School
24.	Headmaster and Staff	Chiengmai Teacher Training School
25.	Headmaster and Staff	Kalasin Agricultural School
26.	Headmaster and Staff	Mae Joh Agricultural School (Chiengmai)
27.	Headmaster and Staff	Mahasarakam Teacher Training School
28.	Headmaster and Staff	Nakornsrithamaraj Agricultural School
29.	Headmaster and Staff	Surin Agricultural School
30.	Headmaster and Staff	Trang Agricultural School
31.	Headmaster and Staff	Udorn Agricultural Short Course School
32.	Holmgren, Dr. Gordon	USOM Educational Statistics Advisor
33.	Hurwitz, Abner	USOM Price Statistics Advisor
34.	Ian Khambanonda, Dr.	Chief, Research Department, Thai Tobacco Monopoly
35.	Jiriwat Wongsawadi	Graduate Student, Educational Psychology, Bangkok Institute for Child Study

36.	Kajorn Tong-umpie	Agricultural Supervisor, Teacher Training Department, Ministry of Education
37.	Kasem Nakaratana	Training Division, Community Development Department, Ministry of Interior
38.	Kaw Sawasdi Panish, Dr.	Chief, Educational Planning Office, Ministry of Education
39.	Kayoon Limtong	Director of Analysis Service, Budget Bureau
40.	Keyes, Charles	Anthropologist, Cornell University (doctoral research)
41.	Kien Chongtuk	Chief, Ayuthia Rice Experiment Station
42.	Kitts, Dr. Harry	USOM Agricultural Education Advisor
43.	Klausner, William	Asia Foundation
44.	Kriang Iamsakul	Director-General, Department of Elementary Education, Ministry of Education
45.	Kugler, Harold	USOM Vocational Education Branch Chief
46.	Langbehn, William A.	ILO Manpower Planning Advisor to National Economic Development Board
47.	Lucas, Graham	Thailand Director, Asia Foundation
48.	Manit Supapung	Changwad Rice Officer, Ayuthia
49.	Manoo Viriyanon	Deputy Director-General, Department of Land Co-operatives, Ministry of National Development
50.	Mitchell, Donald	USOM 4H Club Advisor
51.	Nangyao Chaiseri	Economist, Manpower Planning Office, National Economic Development Board
52.	Niyom Srinoparut	Agricultural Supervisor, Department of Vocational Education, Ministry of Education
53.	Patya Saihoo	Anthropologist, Faculty of Political Science, Chulalongkorn University

54.	Peace Corps Volunteers	Eleven volunteers stationed at various agricultural schools throughout Thailand
55.	Phanom Smitananda, Dr.	Head, Department of Rural Education, Faculty of Agriculture, Kasetsart University
56.	Philp, Dr. Hugh	UNESCO Advisor, Bangkok Institute for Child Study
57.	Pierson, Dr. Gordon	USOM Program Economist
58.	Pittha Bunnag	Head, Agricultural Schools Section, Department of Vocational Education, Ministry of Education
59.	Platenius, Dr. Hans	World Bank Advisor to National Economic Development Board
60.	Prasert Bhenchitra	Acting Chief, Extension Division, Department of Agriculture, Ministry of Agriculture
61.	Prasert Suwansuk	Extension Division, Rice Department Ministry of Agriculture
62.	Prasong Sukhum	Director of Technical Service, Budget Bureau
63.	Praween NaNakorn	Deputy Secretary-General, Civil Service Commission
64.	Prawing, Dr.	Animal Husbandry Division, Livestock Department, Ministry of Agriculture
65.	Prom Panichpakdi, Dr.	Chief, Manpower Planning Office, National Economic Development Board
66.	Puey Ungphakorn, Dr.	Governor of the Bank of Thailand
67.	Rabil Seetasuwan	Deputy Director-General, Department of Vocational Education, Ministry of Education
68.	Sala Dasananda, Dr.	Director-General, Rice Department, Ministry of Agriculture

69.	Sanon Sumitr	Director-General, Department of Secondary Education, Ministry of Education
70.	Sawat Cheo-Sakul	Deputy Director-General, Rice Department, Ministry of Agriculture
71.	Sawat Chongkol	Supervisor, Department of Elementary Education, Ministry of Education
72.	Scott, Walter	USOM Agricultural Extension Advisor
73.	Sheppard, Frank	Chief, USOM Social Development Division
74.	Shipp, Dr. Frederic T.	Chief, USOM Education Division
75.	Smaiswat Bongsadadt	Department of Secondary Education, Ministry of Education
76.	Snodgrass, Dr. Milton M.	Visiting Professor of Agricultural Economics, Kasetsart University
77.	Stifel, Dr. Lawrence D.	USOM Economic Advisor
78.	Stoaks, DuVal	Chief, USOM Public Administration Division
79.	Surang Kowatrakul, Dr.	Chairman, Department of Psychology, School of Education, Chulalongkorn University
80.	Thamrong Buasri, Dr.	Educational Planning Office, Ministry of Education
81.	Thumnong Singalavanij	Director of Agricultural Promotion and Extension, Ministry of Agriculture
82.	Tolman, Harry	Chief of Party, USOM Public Administration Services Contract
83.	Turbyfill, Dr. Thomas	USOM Education Advisor
84.	Varun Somburanasin	Director-General, Department of Land Co-operatives, Ministry of National Development
85.	Vichit Sukhaviriya	Deputy Director-General, Community Development Department, Ministry of Interior

86.	Vivek Pangphuthipong	Chief, Vocational Promotion Division, Department of Vocational Education, Ministry of Education
87.	Wagner, Melvin M.	Visiting Professor of Agricultural Economics, Kasetsart University
88.	Woodhull, Dr. James E.	USOM Agricultural Education Advisor
89.	Work, Dr. Sam	Agricultural Attache, U. S. Embassy
90.	Yatsushiro, Dr. Toshio	USOM Research and Evaluation Advisor, Social Development Division
91.	Zakrzeski, Dr. G.	Director, UNESCO Regional Office for Education in Asia

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